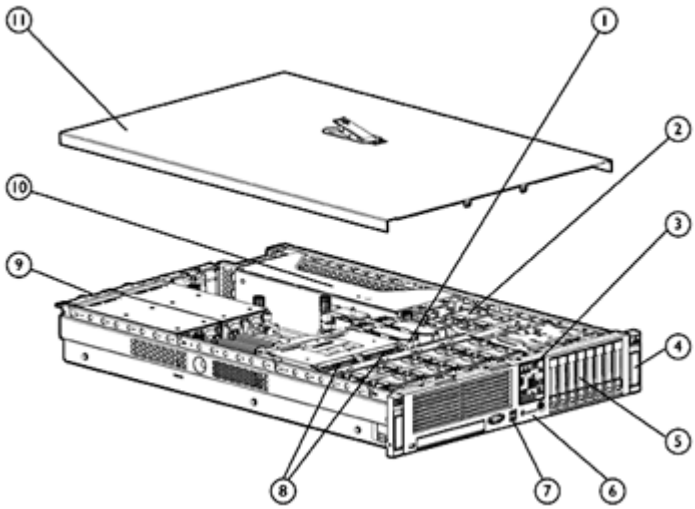
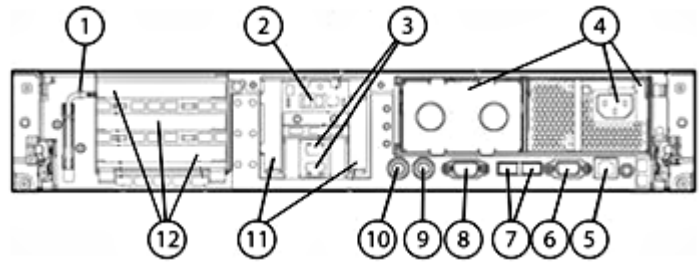
*Overview*




Front View:

1. Eight sockets for PC2-5300 Fully Buffered DIMMs (DDR2-667)
2. Hot-plug fans, full redundancy
3. Systems Insight Display
4. Quick release lever for rapid server access
5. Support for eight Small Form Factor hot plug hard drives bays
6. Front LEDs (show server status) and Unit Identification button/LED (for easy in rack server identification)
7. Two front USB ports (2 rear USB ports, 1 internal USB port)
8. Intel Xeon Processor (Performance models include two processors)
9. Hot plug power supply, redundancy option (High performance models include redundant power supply)
10. Three full-size PCI-E expansion slots in standard expansion cage (or optional mixed PCI-X/E expansion cage). Two additional low-profile PCI-E slots embedded on the system board. Four slots available for use; one consumed by Smart Array controller (Base and Performance models)
11. Quick removal access panel

Rear View:

1. Torx service tool
2. Optional pass through cable door
3. Two Embedded NC373i Multifunction Gigabit Server Adapters with TCP/IP Offload Engine
4. Hot plug power supply bays, redundancy option (High performance models include redundant power supply)
5. Integrated Lights-Out 2 (iLO 2) Remote management port
6. Video Port
7. Two USB 2.0 Ports
8. Serial Port
9. Keyboard Port
10. Mouse PS/2 Port
11. Two low-profile PCI Express x8 slots. Slot 1 is consumed by the P400 Smart Array controller. (Base and Performance models)
12. Three full-size PCI Express slots in standard cage (or optional mixed PCI-X/E expansion cage)

## What's New

- New Intel® Xeon® Dual-core 5200 series processors

## At A Glance

## Overview

The HP ProLiant DL380, the world's best selling server, delivers on its history of design excellence with enterprise-class uptime and manageability, proven 2-way Intel® Xeon® performance, and 2U density for a variety of rack deployments and applications.

- Processors:
  - Quad-Core and Dual-Core Intel® Xeon® processors for blazing performance; systems support up to 2 processors (2 processors standard on all Performance models)
  - Preconfigured Performance models save valuable deployment time at a discounted bundle price
  - Intel® 5000P chipset
- Memory:
  - Up to 32 GB PC2-5300 Fully Buffered DIMMs (DDR2-667) with 4:1 and 2:1 interleaving available, online spare and mirrored memory capabilities
- Storage Controller:
  - Performance Models: HP Smart Array P400/512MB BBWC Controller (RAID 0/1/1+0/5/6)
  - Base Models: HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5)
  - Entry Models: HP Smart Array E200/64MB Controller (RAID 0/1/1+0)
- Internal Drive Support:
  - (8) small form factor (SFF) hot-plug drive bays to support Serial-attached SCSI (SAS) and Serial ATA (SATA) drives
  - Slimline media bay supporting Optical or Floppy drive
- Network Controller:
  - Two embedded NC373i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional Licensing Kit
- Expansion Slots:
  - Four available PCI-Express slots, optional mixed PCI-X / PCI-Express configurations available (see "Standard Features - Expansion Slots" section below for more details)
- USB Ports:
  - USB 2.0 support
  - 5 total ports: (2) ports up front; (2) ports in back; (1) port internal
- Redundancy:
  - Fully redundant hot plug fans (N+1)
  - Hot plug power supply with optional redundancy (Included in Performance models)
- Management:
  - HP Insight Control Environment server management software
  - Integrated Lights-Out 2 featuring Integrated Remote Console with KVM over IP performance over shared network access
  - HP Power Meter and Power Regulator for ProLiant, delivering integrated power monitoring and server level, policy based power management with industry leading energy efficiency and savings on system power and cooling costs.
  - Automatic Server Recovery (ASR), ROM Based Setup Utility (RBSU), HP System Insight Manager, Status LEDs including system health and UID and SmartStart
  - System Insight Display on the front bezel for quick and easy server diagnostics
- Form Factor:
  - Rack (2U), (3.5-inch); Depth 26 inches (66 cm)
- Deployment/Serviceability:
  - Quick Deploy Rail System includes sliding universal rails, an ambidextrous cable management arm and quick release levers for fast and easy serviceability
  - Tool-less access to all system components for easy in rack serviceability
- Warranty:
  - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. SATA hard drives have a one-year warranty.
    NOTE: Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response.

*Overview*

Additional information regarding worldwide limited warranty and technical support is available at:
http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

*Standard Features*

NOTE: For a brief, printer friendly data sheet that describes this product and informs you of the essential capabilities and specifications, please visit: http://h71028.www7.hp.com/ERC/downloads/5983-0605EN.pdf.
NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

| | |
|---|---|
| Processor<br>One of the following depending on Model | Quad-Core Intel® Xeon® Processor X5460 (3.16 GHz, 120 Watts, 1333 Front Side Bus (FSB))<br>Quad-Core Intel® Xeon® Processor X5450 (3.0 GHz, 120 Watts, 1333 FSB)<br>Quad-Core Intel® Xeon® Processor E5450 (3.00 GHz, 80 Watts, 1333 FSB)<br>Quad-Core Intel® Xeon® Processor E5440 (2.83 GHz, 80 Watts, 1333 FSB)<br>Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB)<br>Quad-Core Intel® Xeon® Processor E5420 (2.50 GHz, 80 Watts, 1333 FSB)<br>Quad-Core Intel® Xeon® Processor E5410 (2.33 GHz, 80 Watts, 1333 FSB)<br>Quad-Core Intel® Xeon® Processor E5405 (2.00 GHz, 80 Watts, 1333 FSB)<br>Quad-Core Intel® Xeon® Processor X5365 (3.00 GHz, 120 Watts, 1333 FSB)<br>Quad-Core Intel® Xeon® Processor X5355 (2.66 GHz, 120 Watts, 1333 FSB)<br>Quad-Core Intel® Xeon® Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB)<br>Quad-Core Intel® Xeon® Processor L5335 (2.00 GHz, 50 Watts, 1333 FSB, Low Voltage)<br>Quad-Core Intel® Xeon® Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB)<br>Quad-Core Intel® Xeon® Processor E5320 (1.86 GHz, 80 Watts, 1066 FSB)<br>Quad-Core Intel® Xeon® Processor L5320 (1.86 GHz, 50 Watts, 1066 FSB)<br>Quad-Core Intel® Xeon® Processor E5310 (1.60 GHz, 80 Watts, 1066 FSB)<br>Dual-Core Intel® Xeon® Processor X5260 (3.33 GHz, 80 Watts, 1333 FSB)<br>Dual-Core Intel® Xeon® Processor E5205 (1.86 GHz, 65 Watts, 1066 FSB)<br>Dual-Core Intel® Xeon® Processor 5160 (3.0 GHz, 80 Watts, 1333 FSB)<br>Dual-Core Intel® Xeon® Processor 5150 (2.66 GHz, 65 Watts, 1333 FSB)<br>Dual-Core Intel® Xeon® Processor 5148 (2.33 GHz, 40 Watts, 1333 FSB, Low Voltage)<br>Dual-Core Intel® Xeon® Processor 5140 (2.33 GHz, 65 Watts, 1333 FSB)<br>Dual-Core Intel® Xeon® Processor 5130 (2.0 GHz, 65 Watts, 1333 FSB)<br>Dual-Core Intel® Xeon® Processor 5120 (1.86 GHz, 65 Watts, 1066 FSB)<br>Dual-Core Intel® Xeon® Processor 5110 (1.6 GHz, 65 Watts, 1066 FSB)<br>NOTE: Up to 2 processors supported. Performance configurations include two processors. Mixing different processor models is not supported. |
| Cache Memory<br>One of the following depending on Model | 12MB (2 x 6MB) Level 2 cache (5400 series)<br>8MB (2 x 4MB) Level 2 cache (5300 series)<br>6MB (2 x 3MB) Level 2 cache (5200 series)<br>4MB (1 x 4MB) Level 2 cache (5100 series)<br>4MB (2 x 2MB) Level 2 cache (5000 series) |

*Standard Features*

**Chipset**

Intel® 5000P Chipset
NOTE: For more information regarding Intel chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/.

**Upgradeability**

Upgradeable to 2 processors (8 cores)
Future upgradeable to Xeon® Series 5400/5300 Quad-Core processors (Please contact your regional sales support to determine quad core upgradeability. Some of the earlier shipping models may not support this upgrade). 5100 Dual-Core models are not upgradeable to the 5200 Dual-Core processors.

**Memory Protection**

Advanced ECC (multi-bit error protection), Online Spare, Mirroring
4-way Interleaving

**Memory**

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|---|---|
| Type | PC2-5300 Fully Buffered DIMMs (DDR2-667) with 4:1 and 2:1 interleaving available (interleaving requires identical DIMMs) |
| Standard (Entry Models) | 1 GB (2 x 512 MB) |
| Standard (Base Models) | 2 GB (2 x 1 GB) |
| Standard (Performance Models) | 4 GB (4 x 1 GB) |
| Maximum | 32 GB (8 x 4 GB) |

NOTE: Memory DIMMs in systems with the Front Side Bus (FSB) running at 1333 MHz will run at 667 MHz and in systems with a FSB running at 1066 MHz or 667 MHz the memory DIMMs will run at 533 MHz.

**Network Controller**

Two embedded NC373i Multifunction Gigabit Network Adapters with TCP/IP Offload Engine, including support for Accelerated iSCSI through an optional Licensing Kit

**Expansion Slots**

**Embedded Slots**

| Slot Number | Bus Speed* | Bus Number** | Device Number*** | Hot Plug | PCI Voltage |
|---|---|---|---|---|---|
| 1 | x4 PCIe (x8 connector) | 6 | 0 | no | N/A |
| 2 | x4 PCIe (x8 connector) | 11 | 0 | no | N/A |

NOTE: Embedded slots support half-height low profile cards. For Base and Performance models, the integrated Smart Array P400 (SAS Controller) is installed in Slot 1.

*Standard Features*

**PCIe Riser** (Standard)

| Slot Number | Bus Speed* | Bus Number** | Device Number*** | Hot Plug | PCI Voltage |
|---|---|---|---|---|---|
| 3 | x4 PCIe (x8 connector) | 14 | 0 | no | N/A |
| 4 | x8 PCIe (x16 connector) | 23 | 0 | no | N/A |
| 5 | x8 PCIe (x16 connector) | 19 | 0 | no | N/A |

NOTE: Riser slots support full-size PCIe/PCI-X cards. For Entry model, the standard Smart Array E200 Controller with 64MB Cache (SAS Controller) is installed in Slot 3.

**PCIe/PCI-X Riser** (Optional)

| Slot Number | Bus Speed* | Bus Number** | Device Number*** | Hot Plug | PCI Voltage |
|---|---|---|---|---|---|
| 3 | x8 PCIe (x16 connector) | 23 | 0 | no | N/A |
| 4 | 64-bit/133MHz PCI-X | 18 | 1 | no | 3.3 Volt |
| 5 | 64-bit/133MHz PCI-X | 18 | 2 | no | 3.3 Volt |

NOTE: Server has 5 total slots with 4 slots are available for use; one slot populated by the internal storage controller.
* x4 slots support x8 cards, but will run at x4 speeds. x8 slots support x16 cards, but will run at x8 speeds.
** Default bus assignment. Inserting cards with PCI bridges may alter the actual bus assignment number.
*** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus).

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**Storage Controller**
One of the following depending on Model

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|---|---|
| Performance Models: | HP Smart Array P400/512MB BBWC Controller (RAID 0/1/1+0/5/6) |
| Base Models: | HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5)<br>**Available upgrades**: 512MB battery-backed write cache (BBWC) or standalone battery for RAID 0/1/1+0/5/6 |
| Entry Models: | HP Smart Array E200/64MB Controller (RAID 0/1/1+0)<br>**Available upgrades**: 128MB battery-backed write cache (BBWC) for RAID 0/1/1+0/5 |

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**Storage**

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|---|---|
| Diskette Drive | None Standard |
| Optical Drive<br>One of the following depending on Model | None Standard<br>IDE DVD-ROM/CDRW Combo included on Performance models |
| Hard Drives | None Standard |

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**Maximum Internal Storage**

| | | |
|---|---|---|
| Hot Plug SAS | 1.168TB | 8 x 146GB with standard internal hot plug SFF SAS drive cage |

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*Standard Features*

**Remote Management**

Integrated Lights Out 2 (iLO2) Standard Management:

- Virtual Text Remote Console (pre-OS only)
- Remote Serial Console
- Virtual Power Button Control
- Virtual Unit ID control
- Integrated Remote Console
- Dedicated & full function shared network connectivity
- Embedded system health
- Browser, command line and scripted access
- Automatic IP Configuration via DHCP/DNS/WINS
- Industry Standard 128-bit Secure Sockets Layer (SSL) and Secure Shell security (SSH)
- OS independent hardware health status
- IML and iLO Event Logging
- Support for 12 user accounts with customizable access privilege

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**Intelligent Manageability**

HP Systems Insight Manager
SmartStart
Management Agent
Redundant ROM
Remote Flash ROM
ROM-Based Setup Utility (RBSU)
Integrated Management Log
Automatic Server Recovery (ASR)
Dynamic Sector Repairing (with Smart Array controller)
Drive Parameter Tracking (with Smart Array controller)
Hot Spare Boot
NOTE: Upon the event of a failed processor in a multi-processing environment, the system will automatically reboot and attempt to use the remaining good processor.
Pre-Failure Warranty (covers processors, SAS hard drives and memory)

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**Interfaces**

| | |
|---|---|
| Serial | 1 |
| Pointing Device (Mouse) | 1 |
| Graphics | 1 |
| Keyboard | 1 |
| VGA | 2 (1 front, 1 back) |
| Network RJ-45 | 2 |
| iLO 2 remote management port | 1 |
| USB 2.0 Ports | 5 total: 2 front, 2 back, 1 internal<br>NOTE: Please see the following URL for additional information regarding USB support:<br>http://h18004.www1.hp.com/products/servers/platforms/usb-support.html. |

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*Standard Features*

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| **Graphics** | Integrated ATI ES1000, 32MB video standard<br>• 16 bit color: maximum resolution of 1600 x 1200<br>• 32 bit color: maximum resolution of 1280 x 1024<br>NOTE: Maximum resolution available via iLO 2 remote console is 1280x1024. |
| **Form Factor** | Rack (2U); Height 3.38-inch (8.59 cm); Depth: 26 inches (66 cm) |
| **HP Insight Control Management Suites** | HP Insight Control Environment delivers foundation management, including remote monitoring, hardware resource deployment, health monitoring, software version control, performance monitoring, vulnerability scanning and patch management, and power management.<br>HP Insight Control Environment installs and licenses the following components by default using a wizard-based integrated installer:<br>• HP Systems Insight Manager<br>• HP iLO Advanced Pack<br>• HP Rapid Deployment Pack<br>• HP Insight Power Manager<br>• HP Performance Management Pack<br>• HP Vulnerability and Patch Management Pack<br>Additional ProLiant Essentials software and management tools included on the Insight Control Management kit can be installed manually:<br>• HP Server Migration Pack - Universal Edition<br>• HP Open Service Event Manager<br>• HP Instant Support Enterprise Edition<br>NOTE: Server Migration Pack - Universal Edition can be installed from the SMP Universal CD included in the Insight Control Management media kit.<br>NOTE: For additional product and licensing information about HP Insight Control Environment, visit: http://www.hp.com/go/ice.<br>HP Insight Control management suites and most HP ProLiant Essentials include a one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: http://www.hp.com/services/insight. |

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| **Server Management Stand Alone Software Product - ProLiant Essentials** | HP Systems Insight Manager | HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible standards-based environment to centrally manage servers, storage and other infrastructure devices, (both HP and non-HP) across multiple operating system platforms. |
| | ProLiant Essentials Rapid Deployment Pack | Rapid Deployment Pack (RDP) extends HP Systems Insight Manager with a complete deployment solution for HP ProLiant servers. RDP provides a central location to configure server hardware, deploy Windows, Linux and VMware ESX operating environments and install HP ProLiant Support Pack drivers using images and scripted profiles. For more information, visit: http://www.hp.com/go/rdp. |

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| ProLiant Essentials Server Migration Pack - Universal Edition | Upgrading, replacing, or virtualizing your existing server? Effortlessly transition to new virtual or physical HP ProLiant servers or BladeSystem with automated, accurate and affordable migration of OS, application and data. SMP Universal automates the manual processes required for migrating servers between physical or virtual platforms, whether migrating to VMware or Microsoft virtual machines. SMP Universal allows all of the following migrations:<br>• physical to ProLiant<br>• physical to virtual<br>• virtual to virtual<br>• virtual to ProLiant<br>NOTE: For more information, visit: http://www.hp.com/go/migrate. |
| ProLiant Essentials Performance Management Pack | Performance Management Pack (offered exclusively through the Insight Control suites) - a performance management solution that identifies and explains hardware performance bottlenecks on ProLiant servers and attached options enabling users to better utilize their valuable resources. |
| Integrated Lights-Out Advanced Pack | Upgrades the iLO 2 processor with comprehensive remote control including Virtual KVM remote graphical console, enhanced console sharing and replay, virtual media (floppy, CD/DVD, USB key), virtual folders, and enterprise security (directory services and two-factor authentication). |
| Integrated Lights-Out Select Pack | Upgrades the iLO 2 processor with enhanced console sharing and replay, virtual media (floppy, CD/DVD, USB key), virtual folders, historical power reporting, power capping and enterprise security (directory services and two-factor authentication) for servers managed using remote consoles available in iLO 2 Standard and iLO 2 Standard Blade Edition. |
| iLO Power Management Pack | Energy-efficient management software that delivers centralized control, reliable security, and energy savings for your BladeSystem infrastructure. iPMP combines the total control of iLO 2 Advanced in the area of remote management with the energy monitoring and control of the Insight Power Manager to deliver a robust solution capable of full remote control and power management of ProLiant servers through a unified interface within HP Systems Insight Manager. |
| ProLiant Essentials Accelerated iSCSI Pack | Enables the embedded Multifunction network controller to serve as both a NIC and an iSCSI HBA providing access to SAN storage over the same connection used for networking. Processing of the protocol stack is offloaded to the NIC reducing CPU utilization and greatly improving the speed with which the requests are processed and sent to the network. |
| HP Insight Power Manager (IPM) | Upgrades the single-server remote management capabilities of iLO Select/Advanced to include centralized reporting and policy-based management of power consumption and thermal output provided by the Insight Power Manager. IPM unifies all of this functionality within a single user interface - HP Systems Insight Manager. |

NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to: http://www.hp.com/servers/proliantessentials or the various ProLiant Essentials Value Pack product QuickSpecs for more information.

*Standard Features*

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|---|---|---|
| **Core Infrastructure Management** | SmartStart | SmartStart is a tool that simplifies server setup, providing a rapid way to deploy reliable and consistent server configurations. For more information, please visit the SmartStart Web site at: http://www.hp.com/servers/smartstart.<br>SmartStart version supported (minimum): SmartStart 7.51 |
| | Insight Management Agents | The Insight Management Agents should be installed on all HP servers to present system instrumentation, health and configuration information into HP Systems Insight Manager and the HP System Management Homepage. The HP System Management Homepage aggregates systems data from Insight Management Agents and other HP management tools, providing a consolidated browser-based interface for managing individual servers.<br><br>Insight Management Agents and The HP System Management Homepage are included on ProLiant Support Packs, and can also be installed using the server profiles provided with the ProLiant Essentials Rapid Deployment Pack<br><br>For additional information about the Management Agents and the HP System Management Homepage please visit the management Web site at: http://www.hp.com/servers/manage. |
| | Subscriber's Choice | Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides software and driver change notifications for ProLiant products. Sign up at: http://www.hp.com/go/subscriberschoice and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis. |
| | ProLiant Support Packs and ROMPaq, software | The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options, available through ProLiant Support Packs the ProLiant Essentials Rapid Deployment Pack, SmartStart or downloaded from software and drivers download pages website at: http://www.hp.com/go/support. |

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| **Industry Standard Compliance** | ACPI 2.0 Compliant<br>PCI 2.2 Compliant<br>WOL Support<br>Microsoft® Logo certifications<br>USB 2.0 Support |

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| **Security** | Power-on password<br>Keyboard password<br>Diskette drive control<br>Diskette boot control<br>QuickLock, Network Server Mode<br>Parallel and serial interface control<br>Administrator's password |

*Standard Features*

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|---|---|
| Server Power Cords | An IEC13 to IEC14 jumper cord ships standard with all part numbers if connecting to a UPS or PDU. If a localized cable is desired or required for each geographic specific model, it needs to be purchased, including the US. |
| UPS and PDU Power Cord Matrix | Please see the UPS and PDU cable matrix that lists cable descriptions, requirements, and specifications for UPS and PDU units: http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/index.html |
| Power Supply | 800Watt, CE Mark Compliant<br>Optional Hot Plug AC Redundant Power Supply |
| System Fans | Fully redundant hot plug fans ship standard (N+1). |
| OS Support | Microsoft Windows Server 2000<br>Microsoft Windows Server 2003<br>Microsoft Windows Small Business Server 2003, R2<br>Microsoft Windows Server 2008<br>Novell NetWare<br>Red Hat Enterprise Linux<br>SUSE Linux Enterprise Server<br>SCO UnixWare, OpenServer<br>VMware Virtualization Software<br>Solaris 10 32/64-bit<br>NOTE: For more complete and up-to-date information on how to buy server operating systems from HP please visit the OS product site at: http://h18004.www1.hp.com/products/servers/software/OEM.html.<br>NOTE: For a more complete and up-to-date listing of supported OSs and versions, please visit our OS Support Matrix at: http://www.hp.com/go/supportos.<br>NOTE: For an up-to-date listing of the latest software and drivers available for your server, please select your server: http://h20000.www2.hp.com/bizsupport/TechSupport/Product.jsp?lang=en&cc=us&taskId=135&prodTypeId=15351&prodCatId=241435.<br>NOTE: For more Linux OS support & certification information, please visit our the ProLiant & BladeSystem Server Linux matrix: http://h18004.www1.hp.com/products/servers/linux/hpLinuxcert.html<br>NOTE: For more information on HP's Certified and Supported ProLiant Servers, please visit the VMware Server Support Matrix at: http://h18004.www1.hp.com/products/servers/software/vmware/hpvmwarecert.html. |

*Standard Features*

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|---|---|
| Rack Airflow Requirements | Rack 10000 series Cabinets<br>The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.<br><br>CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:<br><br>• Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).<br>• Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm).<br><br>CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.<br>NOTE: For additional information, refer to the Setup and Installation Guide or the Documentation CD provided with the server, or to the server documentation located in the Support section at the following URL: www.hp.com/servers/dl380. |
| Rack Kit | The HP ProLiant DL380 quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000*, 9000, 10000 and HP series), with an adjustment range of 24" - 36". The ambidextrous cable management arm can be mounted on either the left or right side for improved cable management.<br>NOTE: Cable management arm must be removed to access hot-plug power supplies when the cable management arm is mounted on the right.<br>*NOTE: High Airflow Inserts (High Air Flow Rack Door Insert for the 7142 Rack (single) - PN: 327281-B21; or High Air Flow Rack Door Insert for the 7142 Rack (6-pack) - PN: 327281-B22) are required to support the HP ProLiant DL380 G5 in 7000 series racks. The DL380 G5 Cable Management Arm is not supported on 7000 series racks. |
| Telco Rack Support | DL380 G5 Telco Rack Kit:<br>Support for all 2-post Telco racks requires the use of the standard rack kit and an additional option kit from Rack Solutions: http://www.racksolutions.com/hp/. |

*Standard Features*

**Factory Express Portfolio for Servers and Storage**

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to: http://www.hp.com/go/factory-express.

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**HP Enterprise Configurator**

The HP eCo-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.
http://www.hp.com/products/configurator.

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**Service and Support**

HP Care Pack services include coverage for the HP branded hardware options qualified for the server and purchased at the same time or afterward that are internal to the enclosure. This also includes the 22" and smaller external monitors and tower UPS options up to 3kVA. These items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included, and standard warranty terms & conditions apply. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack.

To fully capitalizing on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions, provides a range of support services designed to meet the varying needs of your business. Whether an SMB, or large global corporation, HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime.

Recommended Service - simplify ProLiant solution implementation, maintenance, and management.

- Support: 3-Year 4-Hour response 24x7 Same Business Day Coverage only
- Deployment Service: Installation and Start up only

Enhanced Service - optimize service level to increase IT performance and availability.

- Support: 3-Year Support Plus 24 only

Refer to the information on "Installation & Start-Up" for service on ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet; to be delivered on a scheduled basis 8am-5pm, M-F, excluding HP holidays.

NOTE: For a complete listing of service offerings and information visit:
http://www.hp.com/services/proliantservices
http://www.hp.com/go/proliant/carepack

*HPC Interconnects*

NOTE: High Performance Computing (HPC) interconnect technologies are available for the DL380 under the Cluster Platform product portfolio. These high-speed interconnects are fully supported by HP when they are part of these configure to order clusters. Solutions can be defined with a lot of flexibility with the help of configuration tools. Please visit the following URL to configure HPC Clusters with InfiniBand, Gigabit Ethernet or Myrinet Interconnects: http://www.hp.com/techservers/clusters/ucp/index.html

| | | |
|---|---|---|
| HPC Interconnect | InfiniBand | PCI-X and PCI-Express adapters |
| | Gigabit Ethernet | Use embedded ports |
| | Myrinet XP | PCI-X Rev D and Rev E adapters |

*Models*

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

| | | |
|---|---|---|
| HP DL380 G5 Performance Models<br><br>Quad-Core Models<br>HP DL380G5 X5460 4G<br>458561-xx1<br>HP DL380G5 X5450 4G<br>458562-xx1<br>HP DL380G5 E5345 4G<br>433524-xx1<br><br>Dual-Core Models<br>HP DL380G5 5160 4G HPM<br>418315-xx1<br>HP DL380G5 5150 4G HPM<br>418314-xx1 | Processor(s)<br>Two of the following depending on Model | (2) Quad-Core Intel® Xeon® X5460 Processors (3.16 GHz, 120 Watt, 1333 FSB)<br>(2) Quad-Core Intel® Xeon® X5450 Processors (3.00 GHz, 120 Watt, 1333 FSB)<br>(2) Quad-Core Intel® Xeon® E5345 Processors (2.33 GHz, 80 Watt, 1333 FSB)<br>(2) Dual-Core Intel® Xeon® 5160 Processors (3.00 GHz, 80 Watt, 1333 FSB)<br>(2) Dual-Core Intel® Xeon® 5150 Processors (2.66 GHz, 65 Watt, 1333 FSB) |
| | Cache Memory<br>Two of the following depending on Model | 12MB (2 x 6MB) Level 2 cache - Intel® Xeon® processor 5400 sequence<br>8MB (2 x 4MB) Level 2 cache - Intel® Xeon® processor 5300 sequence<br>6MB (2 x 3MB) Level 2 cache - Intel® Xeon® processor 5200 sequence<br>4MB (1 x 4MB) Level 2 cache - Intel® Xeon® processor 5100 sequence |
| | Memory | 4 GB (4 x 1 GB of PC2-5300 Fully Buffered DIMMs (DDR2-667) with Advanced ECC, mirrored and online spare memory capabilities |
| | Network Controller | Two Embedded NC373i Multifunction Gigabit Server Adapters |
| | Storage Controller | HP Smart Array P400/512MB BBWC Controller (RAID 0/1/1+0/5/6) |
| | Hard Drive | None ship standard |
| | Internal Storage | 1.168TB (with optional hard drives) |
| | Optical Drive | IDE DVD-ROM/CDRW combo |
| | Form Factor | Rack (2U), Height 3.38-inch/8.59 cm; Depth: 26 inches (66 cm) |
| | Availability | Hot Plug Fully Redundant Fans and Power Supplies |

| | | |
|---|---|---|
| HP DL380 G5 Base Models<br><br>Quad-Core Models<br>HP DL380G5 E5440 2G<br>458563-xx1<br>HP DL380G5 E5430 2G<br>458565-xx1<br>HP DL380G5 E5420 2G<br>458567-xx1<br>HP DL380G5 E5335 2G<br>433525-xx1<br>HP DL380G5 E5320 2G<br>433526-xx1<br><br>Dual-Core Models<br>HP DL380RG5 X5260 2G<br>461453-xx1 | Processor(s)<br>One of the following depending on Model | (1) Quad-Core Intel® Xeon® Processor E5440 (2.83 GHz, 80 Watts, 1333 FSB)<br>(1) Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB)<br>(1) Quad-Core Intel® Xeon® Processor E5420 (2.50 GHz, 80 Watts, 1333 FSB)<br>(1) Quad-Core Intel® Xeon® Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB)<br>(1) Quad-Core Intel® Xeon® E5320 Processors (1.86 GHz, 80 Watt, 1066 FSB)<br>(1) Dual-Core Intel® Xeon® Processor X5260 (3.33 GHz, 80 Watts, 1333 FSB)<br>(1) Dual-Core Intel® Xeon® 5160 Processors (3.00 GHz, 80 Watt, 1333 FSB)<br>(1) Dual-Core Intel® Xeon® 5150 Processors (2.66 GHz, 65 Watt, 1333 FSB)<br>(1) Dual-Core Intel® Xeon® 5140 Processor (2.33 GHz, 65 Watt, 1333 FSB)<br>(1) Dual-Core Intel® Xeon® 5130 Processor (2.0 GHz, 65 Watt, 1333 FSB) |

*Models*

| | | |
|---|---|---|
| HP DL380G5 5160 2G 417458-xx1<br>HP DL380G5 5150 2G 417457-xx1<br>HP DL380G5 5140 2G 417456-xx1<br>HP DL380G5 5130 2G 417455-xx1 | Cache Memory<br>One of the following depending on Model | 12MB (2 x 6MB) Level 2 cache - Intel® Xeon® processor 5400 sequence<br>8MB (2 x 4MB) Level 2 cache - Intel® Xeon® processor 5300 sequence<br>6MB (2 x 3MB) Level 2 cache - Intel® Xeon® processor 5200 sequence<br>4MB (1 x 4MB) Level 2 cache - Intel® Xeon® processor 5100 sequence<br>4MB (2 x 2MB) Level 2 cache - Intel® Xeon® processor 5000 sequence |
| | Memory | 2 GB (2 x 1 GB) PC2-5300 Fully Buffered DIMMs (DDR2-667) with Advanced ECC, mirrored and online spare memory capabilities |
| | Network Controller | Two Embedded NC373i Multifunction Gigabit Server Adapters |
| | Storage Controller | HP Smart Array P400/256MB Controller (RAID 0/1/1+0/5) |
| | Hard Drive | None ship standard |
| | Internal Storage | 1.168TB (with optional hard drives) |
| | Optical Drive | Optional DVD, DVD/CD-RW combo, DVD+R/RW or floppy drive |
| | Form Factor | Rack (2U), Height 3.38-inch/8.59cm; Depth: 26 inches (66 cm) |
| | Availability | Hot Plug Fully Redundant Fans Standard |

| | | |
|---|---|---|
| HP DL380 G5 Entry Models<br><br>Quad-Core Models<br>DL380G5 E5405 1G 458568-xx1<br>HP DL380G5 E5310 1G 433527-xx1 | Processor(s)<br>One of the following depending on Model | (1) Quad-Core Intel® Xeon® E5405 Processor (2.0 GHz, 80 Watt, 1333 FSB)<br>(1) Quad-Core Intel® Xeon® E5310 Processor (1.60 GHz, 80 Watt, 1066 FSB)<br>(1) Dual-Core Intel® Xeon® 5120 Processor (1.87 GHz, 65 Watt, 1066 FSB)<br>(1) Dual-Core Intel® Xeon® 5110 Processor (1.60 GHz, 65 Watt, 1066 FSB) |
| Dual-Core Models<br>HP DL380G5 5120 1G 417454-xx1<br>HP DL380G5 5110 1G 417453-xx1 | Cache Memory<br>Two of the following depending on Model | 12MB (2 x 6MB) Level 2 cache - Intel® Xeon® processor 5400 sequence<br>8MB (2 x 4MB) Level 2 cache - Intel® Xeon® processor 5300 sequence<br>6MB (2 x 3MB) Level 2 cache - Intel® Xeon® processor 5200 sequence<br>4MB (1 x 4MB) Level 2 cache - Intel® Xeon® processor 5100 sequence |
| | Memory | 1 GB (2 x 512 MB) PC2-5300 Fully Buffered DIMMs (DDR2-667) with Advanced ECC, mirrored and online spare memory capabilities |
| | Network Controller | Two Embedded NC373i Multifunction Gigabit Server Adapters |
| | Storage Controller | HP Smart Array E200/64MB Controller (RAID 0/1/1+0) |
| | Hard Drive | None ship standard |
| | Internal Storage | 1.168TB (with optional hard drives) |
| | Optical Drive | Optional DVD, DVD/CD-RW combo, DVD+R/RW or floppy drive |
| | Form Factor | Rack (2U), Height 3.38-inch/8.59cm; Depth: 26 inches (66 cm) |
| | Availability | Hot Plug Fully Redundant Fans Standard |

| | | |
|---|---|---|
| Country Code Key | XX=00 | U.S. |
| | XX=20 | Brazil |
| | XX=29 | Japan |
| | XX=37 | APD |
| | XX=42 | Euro |
| | XX=AA | PRC |

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on CTO product offerings and requirements.
NOTE: HP does not allow factory integration of options into standard models listed above. Configure-to-order servers must start with a CTO Chassis.
NOTE: This product offering does not support HP Factory Express Server Configuration Level 1.
NOTE: FIO indicates that this option only available as a Factory Installable Option.

## Step 1: Base Configuration (choose one of the following configurable models)

| | | |
|---|---|---|
| Models | HP ProLiant DL380G5 Rack CTO Chassis | 391835-B21 |
| | Factory Integrated Model ships with:<br>(8) SFF Serial Attached SCSI (SAS) Drive Bays<br>Two Embedded NC373i Multifunction Gigabit Server Adapters<br>PCI-Express Riser Cage<br>800Watt hot plug power supply, CE Mark Compliant<br>One IEC Power cord<br>Rack (2U), (3.5-inch) | |

## Step 1A: Choose Controller (must choose only one of the following)

| | | |
|---|---|---|
| Controllers | HP Smart Array P400/256 for DL380 G5/ DL385 G2 FIO Controller<br>NOTE: PCI Express | 405160-B21 |
| | HP Smart Array P400/512 BBWC for DL380 G5/ DL385 G2 FIO Controller<br>NOTE: PCI Express | 405162-B21 |
| | HP Smart Array E200/128 BBWC Controller<br>NOTE: PCI Express | 411508-B21 |
| | HP Smart Array P800/512 BBWC Controller<br>NOTE: PCI Express SA-P800 Controller supports both internal and external drives. | 381513-B21 |
| | HP Smart Array P600/256 BBWC Controller<br>NOTE: PCI-X. SA-P600 Controller supports both internal and external drives. | 337972-B21 |
| | HP Smart Array E200/64 FIO Controller | 405528-B21 |
| | HP Smart Array 6402/512 FIO Controller | 441508-B21 |
| | HP Smart Array 6404/512 FIO CNTRLR | 452240-B21 |

## Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

| | | |
|---|---|---|
| Processors | Quad-Core Intel® Xeon® Processor X5460 (3.16 GHz, 120 Watts, 1333 FSB) DL380 FIO Kit | 458581-L21 |
| | Quad-Core Intel® Xeon® Processor X5450 (3.0 GHz, 120 Watts, 1333 FSB) DL380 FIO Kit | 462593-L21 |
| | Quad-Core Intel® Xeon® Processor E5450 (3.0 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit | 458583-L21 |
| | Quad-Core Intel® Xeon® Processor E5440 (2.83 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit | 458585-L21 |

| | | |
|---|---|---|
| | Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit | 458575-L21 |
| | Quad-Core Intel® Xeon® Processor E5420 (2.50 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit | 458577-L21 |
| | Quad-Core Intel® Xeon® Processor E5410 (2.33 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit | 459142-L21 |
| | Quad-Core Intel® Xeon® Processor E5405 (2.00 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit | 458579-L21 |
| | Quad-Core Intel® Xeon® Processor X5365 (3.0 GHz, 120 Watts, 1333 FSB) DL380 FIO Kit | 445560-L21 |
| | Quad-Core Intel® Xeon® Processor L5335 (2.0 GHz, 50 Watts, 1333 FSB) DL380 FIO Kit | 452640-L21 |
| | Quad-Core Intel® Xeon® Processor X5355 (2.66 GHz , 120 Watts, 1333 FSB) DL380 G5 FIO Kit | 437939-L21 |
| | Quad-Core Intel® Xeon® Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB) DL380 G5 FIO Kit | 437940-L21 |
| | Quad-Core Intel® Xeon® Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB) DL380 G5 FIO Kit | 437941-L21 |
| | Quad-Core Intel® Xeon® Processor E5320 (1.86 GHz, 80 Watts, 1066 FSB) DL380 G5 FIO Kit | 433522-L21 |
| | Quad-Core Intel® Xeon® Processor L5320 (1.86 GHz, 50 Watts, 1066 FSB) DL380 G5 FIO Kit | 435934-L21 |
| | Quad-Core Intel® Xeon® Processor E5310 (1.60 GHz, 80 Watts, 1066 FSB) DL380 G5 FIO Kit | 437943-L21 |
| | Dual-Core Intel® Xeon® Processor X5260 (3.33 GHz, 80 Watts, 1333 FSB) DL380 FIO Kit | 461461-L21 |
| | Dual-Core Intel® Xeon® Processor E5205 (1.86 GHz, 65 Watts, 1066 FSB) DL380 FIO Kit | 461465-L21 |
| | Dual-Core Intel® Xeon® Processor 5160 (3.0 GHz, 80 Watts, 1333 FSB) DL380 G5 FIO Kit | 418324-L21 |
| | Dual-Core Intel® Xeon® Processor 5150 (2.66 GHz, 65 Watts, 1333 FSB) DL380 G5 FIO Kit | 418323-L21 |
| | Dual-Core Intel® Xeon® Processor 5148 (2.33 GHz, 40 Watts, 1333 FSB, Low Voltage) DL380 G5 FIO Kit | 432333-L21 |
| | Dual-Core Intel® Xeon® Processor 5140 (2.33 GHz, 65 Watts, 1333 FSB) DL380 G5 FIO Kit | 418322-L21 |
| | Dual-Core Intel® Xeon® Processor 5130 (2.0 GHz, 65 Watts, 1333 FSB) DL380 G5 FIO Kit | 418321-L21 |
| | Dual-Core Intel® Xeon® Processor 5120 (1.86 GHz, 65 Watts, 1066 FSB) DL380 G5 FIO Kit | 418320-L21 |
| | Dual-Core Intel® Xeon® Processor 5110 (1.6 GHz, 65 Watts, 1066 FSB) DL380 G5 FIO Kit | 418319-L21 |
| Base Memory | 1 GB FBD PC2-5300 2 x 512 MB Kit | 397409-B21 |
| | 2 GB FBD PC2-5300 2 x 1 GB Kit | 397411-B21 |
| | 2 GB FBD PC2-5300 2 x 1 GB LP Kit | 461826-B21 |
| | 4 GB FBD PC2-5300 2 x 2 GB Kit | 397413-B21 |

| | |
|---|---|
| 4 GB FBD PC2-5300 2 x 2 GB LP Kit | 461828-B21 |
| 8 GB FBD PC2-5300 2 x 4 GB Kit | 397415-B21 |
| 8 GB FBD PC2-5300 2 x 4 GB LP Kit | 466440-B21 |

NOTE: Memory Option Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, please visit: http://h18004.www1.hp.com/products/servers/platforms/energyefficient/

## Step 3: Choose Additional Factory Integratable Options

**Performance Packs**

The HP ProLiant DL380 G5 performance packs are necessary to configure a HP ProLiant DL380 G5 Performance Model. HP ProLiant DL380 G5 Performance model includes the latest performance technologies and enterprise class availability features pre-installed for convenience and value. The performance pack includes a 2nd processor and a redundant power supply.

NOTE: Must also select Slimline CD-RW/DVD-ROM Combo Option Kit (331903-B21) to achieve parity to DL380 G5 High Performance Models.

| | |
|---|---|
| HP DL380G5 X5460 HPM FIO Perf Pack | 458588-B21 |
| HP DL380G5 X5450 HPM FIO Perf Pack | 458589-B21 |
| HP DL380G5 E5345 HPM FIO Perf Pack | 433559-B21 |
| HP DL380G5 X5160 HPM FIO Perf Pack | 419812-B21 |
| HP DL380G5 X5150 HPM FIO Perf Pack | 419811-B21 |

## Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Options" section below.

NOTE: Some options may not be integrated at the factory. Contact your local sales representative for additional information.

| | | |
|---|---|---|
| HP ProLiant DL380 G5 Unique Options | Mixed Riser Cage Option Kit (PCI-E/PCI-X) | 410570-B21 |

HP Insight Control Management Suites

NOTE: Electronic licensing options are available for Insight Control suites software products. Please see the appropriate Insight Control QuickSpecs for additional information.

HP Insight Control Environment

| | |
|---|---|
| HP Insight Control Environment, No Media 1-Server License including 1 year of 24x7 Technical Support and Updates<br>NOTE: This part number can be purchased as a single license or as multiple licenses with a single activation key. Customer will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. Only available directly from HP and select resellers in the Americas region. | 452148-B22 |
| HP Insight Control Management Software Media Kit<br>NOTE: Insight Control Management DVD media without licenses. Contains Insight Manager and Essentials software products and components licensed by Insight Control Management suites. Uses an integrated installer to perform quick and accurate software installation and updates. | 436222-B21 |

NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html

Integrated Lights-Out Power Management Pack

| | |
|---|---|
| HP iLO Power Management Pack, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates<br>NOTE: This option kit includes 1 license for iLO Advanced and Insight Power Manager. | 452145-B21 |

NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12632_div/12632_div.html

Server Management Stand Alone Software

NOTE: Electronic licensing options are available for select ProLiant Essentials software products. Please see the appropriate ProLiant Essentials QuickSpecs for additional information.

Deploy

ProLiant Essentials Rapid Deployment Pack

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|---|---|
| ProLiant Essentials Rapid Deployment Pack No Media 1-Server License including 1 year of 24x7 Technical Support and Updates<br>NOTE: This license allows 1 server to be deployed and managed via RDP. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service | 452151-B21 |

NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11053_div/11053_div.html

HP Server Migration Pack - Universal Edition

| | |
|---|---|
| HP Server Migration Pack - Universal Edition, No Media, Physical / Virtual to ProLiant Single Migration License, including 1 year of 24x7 Technical Support and Updates<br>NOTE: This license allows 1 physical to ProLiant or virtual to ProLiant migration. Customer will receive a printed license entitlement certificate and documentation via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. | 460750-B21 |
| HP Server Migration Pack - Universal Edition, No Media, Physical / Virtual to Virtual Single Migration License, including 1 year of 24x7 Technical Support and Updates<br>NOTE: This license allows 1 physical to virtual or virtual to virtual migration. Customer will receive a printed license entitlement certificate and documentation via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. | 460753-B21 |
| HP Server Migration Pack - Universal Edition, No Media, 1-Year Unlimited Migration License, including 1 year of 24x7 Technical Support<br>NOTE: This license allows unlimited migrations (physical to ProLiant, physical to virtual, virtual to virtual, and virtual to ProLiant) for one year. Customer will receive a printed license entitlement certificate and documentation via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service.<br>NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12855_div/12855_div.html | 460756-B21 |
| Control | |
| Integrated Lights-Out Select Pack | |
| ProLiant Essentials Integrated Lights-Out Select Pack, No Media, 1-Server License<br>NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12362_div/12362_div.html | 452158-B21 |
| Integrated Lights-Out Advanced Pack | |
| Integrated Lights-Out Advanced Pack, No Media ,1 Server License<br>NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/10861_div/10861_div.html | 452141-B21 |
| Optimize | |
| Accelerated iSCSI Pack | |
| ProLiant Essentials Accelerated iSCSI Pack, No Media, Single License<br>NOTE: For use with a single NIC port. Contains one license with a unique license activation key and documentation.<br>NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12466_div/12466_div.html | 452679-B21 |
| HP Insight Power Manager (IPM) | |
| HP Insight Power Manager, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates<br>NOTE: Customers purchasing this upgrade must already have an iLO Advanced or Select license on each managed server. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.<br>NOTE: For additional License Kits, please see the QuickSpecs at: | 452677-B21 |

| | | |
|---|---|---|
| | http://h18000.www1.hp.com/products/quickspecs/12623_div/12623_div.html | |
| | **ProLiant Essentials Virtual Machine Management Pack** | |
| | ProLiant Essentials Virtual Machine Management Pack, No Media, 1-Server License, including 1 year of 24x7 Technical Support and Updates<br>NOTE: Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service.<br>NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12328_div/12328_div.html | 452153-B21 |
| | **RDMA Pack** | |
| | RDMA Pack for Embedded Multifunction Gigabit Server Adapters, No Media, 1-Server License<br>NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12573_div/12573_div.html | 452681-B21 |
| | NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to: http://www.hp.com/servers/proliantessentials or the various ProLiant Essentials QuickSpecs for more information. | |
| **ProLiant Software Maintenance Subscription** | ProLiant Software Maintenance Single Release<br>NOTE: Please see the SmartStart QuickSpecs for additional information regarding the subscription purchase: http://h18000.www1.hp.com/products/quickspecs/division/11073.html (Worldwide) | 356573-B21 |
| **Processors** | Quad-Core Inte®l Xeon® Processor X5460 (3.16 GHz, 120 Watts, 1333 FSB) | 458581-B21 |
| | Quad-Core Intel® Xeon® Processor X5450 (3.0 GHz, 120 Watts, 1333 FSB) | 462593-B21 |
| | Quad-Core Intel® Xeon® Processor E5450 (3.0 GHz, 80 Watts, 1333 FSB) | 458583-B21 |
| | Quad-Core Intel® Xeon® Processor E5440 (2.83 GHz, 80 Watts, 1333 FSB) | 458585-B21 |
| | Quad-Core Intel® Xeon® Processor E5430 (2.66 GHz, 80 Watts, 1333 FSB) | 458575-B21 |
| | Quad-Core Intel® Xeon® Processor E5420 (2.50 GHz, 80 Watts, 1333 FSB) | 458577-B21 |
| | Quad-Core Intel® Xeon® Processor E5410 (2.33 GHz, 80 Watts, 1333 FSB) | 459142-B21 |
| | Quad-Core Intel® Xeon® Processor E5405 (2.00 GHz, 80 Watts, 1333 FSB) | 458579-B21 |
| | Quad-Core Intel® Xeon® Processor X5365 (3.00GHz , 120 Watts, 1333 FSB) | 445560-B21 |
| | Quad-Core Intel® Xeon® Processor L5335 (2.0 GHz, 50 Watts, 1333 FSB) | 452640-B21 |
| | Quad-Core Intel® Xeon® Processor X5355 (2.66 GHz, 120 Watts, 1333 FSB) | 437939-B21 |
| | Quad-Core Intel® Xeon® Processor E5345 (2.33 GHz, 80 Watts, 1333 FSB) | 437940-B21 |
| | Quad-Core Intel® Xeon® Processor E5335 (2.00 GHz, 80 Watts, 1333 FSB) | 437941-B21 |
| | Quad-Core Intel® Xeon® Processor E5320 (1.86 GHz, 80 Watts, 1066 FSB) | 433522-B21 |
| | Quad-Core Intel® Xeon® Processor L5320 (1.86 GHz, 50 Watts, 1066 FSB) | 435934-B21 |
| | Quad-Core Intel® Xeon® Processor E5310 (1.60 GHz, 80 Watts, 1066 FSB) | 437943-B21 |
| | Dual-Core Intel® Xeon® Processor X5260 (3.33 GHz, 80 Watts, 1333 FSB) | 461461-B21 |
| | Dual-Core Intel® Xeon® Processor E5205 (1.86 GHz, 65 Watts, 1066 FSB) | 461465-B21 |
| | Dual-Core Intel® Xeon® Processor 5160 (3.0 GHz, 80 Watts, 1333 FSB) | 418324-B21 |
| | Dual-Core Intel® Xeon® Processor 5150 (2.66 GHz, 65 Watts, 1333 FSB) | 418323-B21 |

*Options*

| | | |
|---|---|---|
| | Dual-Core Intel® Xeon® Processor 5148 (2.33 GHz, 40 Watts, 1333 FSB, Low Voltage) | 432333-B21 |
| | Dual-Core Intel® Xeon® Processor 5140 (2.33 GHz, 65 Watts, 1333 FSB) | 418322-B21 |
| | Dual-Core Intel® Xeon® Processor 5130 (2.0 GHz, 65 Watts, 1333 FSB) | 418321-B21 |
| | Dual-Core Intel® Xeon® Processor 5120 (1.86 GHz, 65 Watts, 1066 FSB) | 418320-B21 |
| | Dual-Core Intel® Xeon® Processor 5110 (1.6 GHz, 65 Watts, 1066 FSB) | 418319-B21 |
| **Memory** (DIMMs) | 1 GB FBD PC2-5300 2 x 512 MB Kit | 397409-B21 |
| | 2 GB FBD PC2-5300 2 x 1 GB Kit | 397411-B21 |
| | 2 GB FBD PC2-5300 2 x 1 GB LP Kit | 461826-B21 |
| | 4 GB FBD PC2-5300 2 x 2 GB Kit | 397413-B21 |
| | 4 GB FBD PC2-5300 2 x 2 GB LP Kit | 461828-B21 |
| | 8 GB FBD PC2-5300 2 x 4 GB Kit | 397415-B21 |
| | 8 GB FBD PC2-5300 2 x 4 GB LP Kit | 466440-B21 |
| | NOTE: Memory Option Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, please visit: http://h18004.www1.hp.com/products/servers/platforms/energyefficient/ | |
| **Diskette Drive** | Slimline Ejectable Floppy drive | 390164-B21 |
| **Optical Drives** | Slimline CD-RW/DVD-ROM Combo Option Kit | 331903-B21 |
| | NOTE: Included in performance models. | |
| | Slimline DVD-ROM Drive (8x/24x) Option Kit | 264007-B21 |
| | HP DVD±R/RW 8X Slim | 383975-B21 |
| | Slimline CD-ROM Drive 24X | 356963-B21 |
| **Hard Drives** | **Hot Plug SFF SAS 2.5" Drives** | |
| | HP 146GB 3G SAS 10K SFF DP HDD | 418367-B21 |
| | HP 146GB 3G SAS 10K SFF SP HDD | 431958-B21 |
| | HP 72GB 3G SAS 15K SFF DP HDD | 418371-B21 |
| | HP 72GB 3G SAS 15K SFF SP HDD | 431935-B21 |
| | HP 72GB 3G SAS 10K SFF DP HDD | 384842-B21 |
| | HP 72GB 3G SAS 10K SFF SP HDD | 375861-B21 |
| | HP 36GB 3G SAS 15K SFF DP HDD | 418369-B21 |
| | HP 36GB 3G SAS 15K SFF SP HDD | 431933-B21 |
| | NOTE: Please see the SAS Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide) | |
| | **SFF SATA Hot Plug** | |
| | HP 120GB 1.5G SATA 5.4K SFF HDD | 431786-B21 |

*Options*

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|---|---|---|
| | HP 60GB 1.5G SATA 5.4K SFF HDD | 379306-B21 |
| | NOTE: SATA drives have a 1 year warranty. Please see the SATA Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: http://h18000.www1.hp.com/products/quickspecs/11940_div/11940_div.html (Worldwide) | |
| Storage Controllers | SAS Controllers | |
| | Smart Array E200 Controller | |
| | HP Smart Array E200/128 BBWC Controller | 411508-B21 |
| | 128-MB BBWC (Battery-Backed Write Cache) Enabler | 351580-B21 |
| | NOTE: Supports the Smart Array E200 Controller, Smart Array 641 Controller, and Smart Array 642 Controller. | |
| | Smart Array E500 Controller | |
| | Smart Array E500/256MB Controller | 435129-B21 |
| | Smart Array P400 Controller | |
| | HP Smart Array P400/256MB Controller | 405132-B21 |
| | HP Smart Array P400/512MB BBWC Controller | 411064-B21 |
| | 512MB Battery-backed cache upgrade | 405148-B21 |
| | NOTE: Contains batter and memory module. For Smart Array P400 Controller. | |
| | Battery-backed write cache upgrade | 383280-B21 |
| | NOTE: Contains battery only. For Smart Array P400 Controller. | |
| | Smart Array P400 Battery Attach Kit | 417836-B21 |
| | NOTE: This option kit contains a 24" battery cable and adhesive material for installing a battery into the HP ProLiant DL380 G5 if a Smart Array P400 is integrated outside of the factory. For all solutions, please refer to the server QuickSpecs and User's Manual for detailed installation instructions. | |
| | Smart Array P600 Controller | |
| | HP Smart Array P600/256 BBWC Controller | 337972-B21 |
| | NOTE: Requires Mixed PCI-E/X riser cage. | |
| | 512 MB Battery-Backed Cache Upgrade | 372538-B21 |
| | NOTE: This 512-MB Battery-Backed Cache Module upgrade kit supports the Smart Array P600 Controller and the Smart Array 6400 series Controller. | |
| | Smart Array P800 Controller | |
| | HP Smart Array P800/512 BBWC Controller | 381513-B21 |
| | NOTE: Please see the following QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12460_div/12460_div.html (Smart Array E200 Controller) http://h18000.www1.hp.com/products/quickspecs/12700_div/12700_div.html (Smart Array E500 Controller) http://h18000.www1.hp.com/products/quickspecs/12400_div/12400_div.html (Smart Array P400 Controller) http://h18000.www1.hp.com/products/quickspecs/12247_div/12247_div.html (Smart Array P600 Controller) http://h18000.www1.hp.com/products/quickspecs/12616_div/12616_div.html | |

(Smart Array P800 Controller)

SAS HBA

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|---|---|
| HP SC44Ge Host Bus Adapter | 416096-B21 |
| HP 8 Internal Port SAS HBA with RAID | 347786-B21 |

NOTE: Please see the following QuickSpecs for additional information:
http://h18004.www1.hp.com/products/quickspecs/12617_div/12617_div.html (SC44Ge HBA)
http://h18004.www1.hp.com/products/quickspecs/12332_div/12332_div.html (SAS HBA)

SCSI Controllers for External Drive/Storage Support

NOTE: All Ultra 320 controllers are PCI-X and require the Mixed Riser Cage Option Kit (PCI-E/PCI-X).

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|---|---|
| Smart Array 6402/128 Controller<br>NOTE: Ultra320 SCSI. | 273915-B21 |
| Smart Array 6404/256 Controller<br>NOTE: Ultra320 SCSI. | 273914-B21 |
| Smart Array 642 Controller<br>NOTE: Ultra320 SCSI. | 291967-B21 |
| 128-MB Battery-Backed Write Cache (BBWC)<br>NOTE: Supports the Smart Array E200 Controller, Smart Array 641 Controller, and Smart Array 642 Controller. | 351580-B21 |
| Ultra320 Expansion Module for SA-6402 | 273911-B21 |
| 64-Bit/133-MHz Single Channel Ultra320 SCSI HBA G2 | 374654-B21 |

SCSI HBA

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|---|---|
| HP SC11Xe Host Bus Adapter | 412911-B21 |

NOTE: Please see the following QuickSpecs for Technical Specifications and additional information:
http://h18000.www1.hp.com/products/quickspecs/11943_div/11943_div.html (Single Channel Ultra320 SCSI HBA)
http://h18000.www1.hp.com/products/quickspecs/11587_div/11587_div.html (Smart Array 6400 Series)
http://h18000.www1.hp.com/products/quickspecs/12069_div/12069_div.html (Smart Array 642)
http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html (SC11Xe HBA)

*Options*

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|---|---|---|
| **Communications** | HP NC110T PCI Express Gigabit Server Adapter<br>NOTE: Does not support Windows 2000. | 434905-B21 |
| | HP NC360T PCI Express Dual Port Gigabit Server Adapter | 412648-B21 |
| | HP NC364T PCI Express Quad Port Gigabit Server Adapter<br>NOTE: Does not support Windows 2000. | 435508-B21 |
| | HP NC373F PCI Express Multifunction Gigabit Server Adapter | 394793-B21 |
| | HP NC373T PCI Express Multifunction Gigabit Server Adapter | 394791-B21 |
| | HP NC380T PCI Express Dual Port Multifunction Gigabit Server Adapter | 394795-B21 |
| | HP NC510F PCIe 10 Gigabit Server Adapter<br>NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510F adapter. | 414126-B21 |
| | HP NC510C PCIe 10 Gigabit Server Adapter<br>NOTE: A minimum of 1 gigabyte (1 GB) of server memory is required per each NC510C adapter. | 414129-B21 |
| | HP NC7170 PCI-X Dual Port 1000T Gigabit Server Adapter | 313881-B21 |
| **HPC Specific Options** | HP IB 4X DDR PCI-e Dual Port HCA | 409376-B21 |
| | HP IB 4X DDR PCI-e single PORT HCA | 431039-B21 |
| | HP IB 4X SDR PCI-e single PORT HCA | 431038-B21 |
| | HP IB 4X DDR Conn-X PCI-e Dual Port HCA | 448397-B21 |
| **Redundant Options** | Redundant Power Supply 350/370/380 G5 AU Kit | 399771-011 |
| | Redundant Power Supply 350/370/380 G5 EU Kit | 399771-021 |
| | Redundant Power Supply 350/370/380 G5 JP Kit | 399771-291 |
| | Redundant Power Supply 350/370/380 G5 Worldwide Kit | 399771-B21 |
| | Redundant Power Supply 350/370/380 G5 UK Kit | 399771-031 |
| | Redundant Power Supply 350/370/380 G5 US Kit | 399771-001 |
| | Redundant Power Supply 380 G5 Worldwide Kit - 48Volt DC<br>NOTE: Factory integration not available for PN 433634-B21. | 433634-B21 |
| **Power Cords** | Nema 5-15P to IEC320-C13, North America low voltage (6 ft/2 m) | AF556A |
| | Power Cord, Euro, 10A 250V Straight (6 ft/2 m) | AF568A |
| | Power Cord, UK/HK/SING, 10A 250V Straight (6 ft/2 m) | AF570A |
| | Power Cord, Danish, 10A 250V Straight (6 ft/2 m) | AF566A |
| | Power Cord, Swiss, 10A 250V Straight (6 ft/2 m) | AF565A |
| | Power Cord, Italian/Chile, 10A 250V Straight (6 ft/2 m) | AF571A |
| | Power Cord, South Africa, 10A 250V Straight (8 ft/2.5 m) | AF567A |
| **Tape Drives** | NOTE: For the complete listing of Tape Drive offerings, please see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html<br><br>For recommended tape drive offerings for this ProLiant server see the following: | |

*Options*

USB Tape Drives

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|---|---|
| HP StorageWorks 1U USB Rack-Mount Kit with one DAT 160 USB Tape Drive | AG703A |

SAS Tape Drives

NOTE: For the DL380 G5, HP recommends purchasing the HP SC44Ge HBA (416096-B21) for a dedicated SAS HBA for tape.

| | |
|---|---|
| HP StorageWorks DAT 160 SAS Internal Tape Drive<br>NOTE: HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution. | Q1587A |
| HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive<br>NOTE: HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution. | DW085A |
| HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive<br>NOTE: HP recommends combining this tape drive with the 1U SAS Rack-Mount kit (AE459A) for a complete rack-mount solution. | EH847A |
| HP StorageWorks 1U SAS Rack-mount kit with one LTO-4 Ultrium 1760 | EH946A |

NOTE: Please refer to the "Tape Drives, Tape Autoloaders & Tape Libraries" table in the Storage section of this document for a list of SAS controllers with tape support.

SCSI Tape Drives

NOTE: For the DL380 G5, HP recommends purchasing the HP SC11Xe HBA (412911-B21) for a dedicated SCSI HBA for tape.

| | |
|---|---|
| HP StorageWorks LTO-1 Ultrium 232 Internal Tape Drive (Carbonite)<br>NOTE: HP recommends combining this tape drive with the 1U SCSI Rack-Mount kit (A7445B) for a complete rack-mount solution. | DW064A |
| HP StorageWorks 1U SCSI Rack-mount kit with one LTO-2 Ultrium 448 SCSI Tape Drive (Carbonite) | DW028B |
| HP StorageWorks 1U SCSI Rack-mount kit with one LTO-3 Ultrium 920 | EH903A |

NOTE: Please see the HP StorageWorks Ultrium Tape Drive QuickSpecs for additional options such as controllers, media, and other related items:
http://h18006.www1.hp.com/products/quickspecs/11739_div/11739_div.html (Worldwide)
http://h18006.www1.hp.com/products/quickspecs/12128_div/12128_div.html (Worldwide)

For an up-to-date listing of the latest O/S and software support details for HP Ultrium tape drives, please visit: http://www.hp.com/go/connect.

Rack-Mount Tape Drive Enclosures

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|---|---|
| HP StorageWorks 1U SCSI Rack-Mount kit<br>NOTE: The 1U Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with multiple Single-Ended and LVD SCSI tape drives including the DAT 40, DAT 72, DAT 160, DLT VS160, LTO-1 Ultrium 232, LTO-2 Ultrium 448 and LTO-3 Ultrium 920 tape drives. | A7445B |
| HP StorageWorks 1U USB Rack-Mount Kit<br>NOTE: The 1U USB Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the DAT 40 USB, DAT 72 USB and DAT 160 tape drives. | A8007A |
| HP StorageWorks 1U SAS Rack-Mount Kit<br>NOTE: The 1U SAS Rack-Mount Kit can support up to (2) half-height tape drives and is compatible with the LTO-2 Ultrium 448 SAS, LTO-3 Ultrium 920 SAS tape drives. | AE459A |

*Options*

NOTE: Please see the Rack-Mount Tape Drive Kits QuickSpecs for additional information regarding these kits: http://h18000.www1.hp.com/products/quickspecs/10854_div/10854_div.html (Worldwide)

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|---|---|---|
| HP D2D Backup System | HP StorageWorks D2D110 Backup System<br>NOTE: 1TB of Disk Storage. | EH880A |
| | HP StorageWorks D2D110 Backup System with Data Protector Express Software Kit<br>NOTE: 1TB of Disk Storage. | EH923A |
| | HP StorageWorks D2D120 Backup System<br>NOTE: 2TB of Disk Storage. | EH884A |
| | HP StorageWorks D2D120 Backup System with Data Protector Express Software Kit<br>NOTE: 2TB of Disk Storage. | EH924A |
| | HP StorageWorks D2D130 Backup System<br>NOTE: 3TB of Disk Storage. | EH950A |
| | HP StorageWorks D2D130 Backup System with Data Protector Express Software Kit<br>NOTE: 3TB of Disk Storage. | EH951A |
| | HP StorageWorks D2D130 Backup System with LTO-3 Ultrium 920 SAS Tape Drive<br>NOTE: 3TB of Disk Storage. | EH952A |
| | NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/12651_div/12651_div.html (Worldwide) | |

| | | |
|---|---|---|
| Tape Autoloaders | HP StorageWorks DAT Autoloader | |
| | HP StorageWorks DAT 72x10 tape autoloader | AE313B |
| | HP StorageWorks 1/8 Tape Autoloader | |
| | HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader | AK377A |
| | HP StorageWorks 1/8 LTO-3 Ultrium 920 G2 Tape Autoloader | AH165A |
| | HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader | AH558A |
| | HP StorageWorks 1/8 LTO-2 Ultrium 448 G2 Tape Autoloader | AH164A |
| | HP StorageWorks 1/8 LTO-1 Ultrium 232 G2 Tape Autoloader | AH163A |
| | HP StorageWorks 1/8 G2 Tape Autoloader Rack Kit<br>NOTE: Required to install the 1/8 G2 Autoloaders in a standard 19-inch rack; includes rails and rackmount instructions. | AH166A |
| | NOTE: Please reference the Tape Autoloader QuickSpecs at: http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at: http://www.hp.com/go/ebs. | |

*Options*

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|---|---|---|
| Tape Libraries | HP StorageWorks MSL2024 Tape Library | |
| | HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 SCSI Drive Library | AJ033A |
| | HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 4GB FC Library | AJ034A |
| | HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Drive Library | AK378A |
| | HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 SCSI Drive Library | AG115A |
| | HP StorageWorks MSL2024 1 LTO-3 Ultrium 960 4GB FC Library | AG326B |
| | HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SAS Drive Library | AH559A |
| | HP StorageWorks MSL2024 1 LTO-3 Ultrium 920 SCSI Drive Library | AH169A |
| | HP StorageWorks MSL2024 1 LTO-2 Ultrium 448 SCSI Drive Library | AG116A |
| | HP StorageWorks MSL4048 Tape Library | |
| | HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 SCSI Drive Library | AJ035A |
| | HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 4GB FC Library | AJ036A |
| | HP StorageWorks MSL4048 2 LTO-4 Ultrium 1760 SAS Drive Library | AK380A |
| | HP StorageWorks MSL4048 1 LTO-3 Ultrium 960 SCSI Drive Library | AG322A |
| | HP StorageWorks MSL4048 1 LTO-3 Ultrium 960 4GB FC Library | AG324B |
| | HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SAS Drive Library | AH560A |
| | HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SCSI Drive Library | AH171A |
| | HP StorageWorks MSL4048 1 LTO-2 Ultrium 448 SCSI Drive Library | AG320A |
| | HP StorageWorks MSL8096 Tape Library | |
| | HP StorageWorks MSL8096 2 LTO-4 Ultrium 1840 SCSI Drive Library | AJ039A |
| | HP StorageWorks MSL8096 2 LTO-4 Ultrium 1840 4GB FC Library | AJ040A |
| | HP StorageWorks MSL8096 2 LTO-4 Ultrium 1760 SAS Drive Library | AK382A |
| | HP StorageWorks MSL8096 2 LTO-3 Ultrium 920 SAS Drive Library | AH561A |
| | HP StorageWorks MSL8096 2 LTO-3 Ultrium 960 4GB FC Library | AH218A |
| | HP StorageWorks MSL8096 2 LTO-3 Ultrium 960 Drive Library | AH219A |
| | HP StorageWorks MSL6000 Tape Library | |
| | LTO-4 Ultrium 1840 technology | |
| | HP StorageWorks MSL6030 1 LTO-4 Ultrium 1840 SCSI Drive Library | AJ029A |
| | HP StorageWorks MSL6030 1 LTO-4 Ultrium 1840 4GB FC Library | AJ030A |
| | HP StorageWorks MSL6060 2 LTO-4 Ultrium 1840 SCSI Drive Library | AJ031A |
| | HP StorageWorks MSL6060 2 LTO-4 Ultrium 1840 4GB FC Library | AJ032A |
| | LTO-3 Ultrium 960 technology | |
| | HP StorageWorks MSL6030 1 Ultrium 960 Dr LVDS Library | AD606B |
| | HP StorageWorks MSL6030 1 Ultrium 960 Dr FC Library | AD608B |
| | HP StorageWorks MSL6030 2 Ultrium 960 Dr LVDS Library | AD607B |
| | HP StorageWorks MSL6030 2 Ultrium 960 Dr FC Library | AD609B |

NOTE: Please reference the MSL2024, MSL4048, MSL8096 and MSL6000 Tape Library QuickSpecs at: http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at: http://www.hp.com/go/ebs.

*Options*

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| **Cluster Options** | ProLiant Cluster Starter Kit | 364023-B22 |
| | NOTE: For additional information regarding the ProLiant Cluster Starter Kit please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11935_div/11935_div.html (Worldwide) | |
| | HP Serviceguard for Linux, A.11.18 (single license version - Red Hat EL 4&5, SUSE SLES 9&10) | 305199-B27 |
| | HP Serviceguard for Linux, A.11.18 (single license version - Red Hat EL 4&5, SUSE SLES10) | 307754-B27 |
| | HP Serviceguard for Linux and Red Hat Global File System - 1 year subscription | T2798AA#001 |
| | HP Serviceguard for Linux and Red Hat Global File System - 3 years subscription | T2798AA#003 |
| | NOTE: For additional information regarding HP Serviceguard for Linux, please see the following QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/11518_div/11518_div.html (Worldwide) | |
| | NOTE: For configuration/certification options for HP Serviceguard for Linux please go to: http://www.hp.com/info/sglx | |
| **StorageWorks Options** | **StorageWorks Fibre Channel HBA** | |
| | NOTE: For the complete listing of Fibre Channel Host Bus Adapters for Windows 2000, Windows Server 2003 and Linux, please see: http://h18006.www1.hp.com/storage/saninfrastructure/hba.html | |
| | HP StorageWorks FC2142SR 4Gb PCI-e HBA | A8002A |
| | HP StorageWorks FC2242SR Dual Channel 4 Gb PCI-e HBA | A8003A |
| | HP StorageWorks FC1142SR 4Gb PCI-e HBA | AE311A |
| | HP StorageWorks FC1242SR Dual Channel 4 Gb PCI-e HBA | AE312A |
| | HP StorageWorks FC2143 4Gb PCI-X 2.0 -to-Fibre Channel HBA | AD167A |
| | HP StorageWorks FC2243 Dual Channel 4Gb PCI-X 2.0 HBA | AD168A |
| | HP StorageWorks FC1143 4Gb PCI-X 2.0 HBA | AB429A |
| | HP StorageWorks FC1243 Dual Channel 4Gb PCI-X 2.0 HBA | AE369A |
| | HP StorageWorks 81Q PCI-e FC HBA | AK344A |
| | **StorageWorks SCSI HBA** | |
| | HP U320e SCSI Host Bus Adapter | AH627A |
| | NOTE: Recommended Dual Channel Ultra320 SCSI Controller for connecting multi-drive MSL tape libraries to ProLiant servers. | |
| **HP StorageWorks Modular Smart Array 20** | HP StorageWorks Modular Smart Array 20 | 335921-B21 |
| | NOTE: Rack-mountable 12 (SATA) drive enclosure with U320 Host connectivity, redundant power supplies. | |
| | NOTE: Please see the Modular Smart Array 20 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11942_div/11942_div.html (Worldwide) | |

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|---|---|---|
| HP StorageWorks Modular Smart Array 30 | HP StorageWorks Modular Smart Array 30 SB<br>NOTE: Rack-mountable 14 drive enclosure with single bus, redundant power supplies | 302969-B21 |
| | HP StorageWorks Modular Smart Array 30 DB<br>NOTE: Rack-mountable 14 drive enclosure with dual bus, redundant power supplies | 302970-B21 |
| | NOTE: Please see the Modular Smart Array 30 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11738_div/11738_div.html (Worldwide) | |
| HP StorageWorks Modular Smart Array 50 | HP StorageWorks Modular Smart Array 50 Enclosure<br>NOTE: Please see the Modular Smart Array 50 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12245_div/12245_div.html (Worldwide) | 364430-B21 |
| HP StorageWorks Modular Smart Array 60 | HP StorageWorks 60 Modular Smart Array Enclosure<br>NOTE: Please see the Modular Smart Array 60 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.html (Worldwide) | 418408-B21 |
| HP StorageWorks Modular Smart Array 70 | HP StorageWorks 70 Modular Smart Array Enclosure<br>NOTE: Please see the Modular Smart Array 70 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html (Worldwide) | 418800-B21 |
| HP StorageWorks Modular Smart Array 500 G2 | HP StorageWorks Modular Smart Array 500 Generation 2<br>NOTE: Please see the Modular Smart Array 500 Generation 2 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/11956_div/11956_div.html (Worldwide) | 335880-B21 |
| HP StorageWorks Modular Smart Array 1000 | HP StorageWorks Modular Smart Array 1000<br>NOTE: Please see the Modular Smart Array 1000 QuickSpecs for additional options and configuration information at: http://hp.com/go/msa1000. | 201723-B22 |

*Options*

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| **HP StorageWorks Modular Smart Array 1500 cs** | Modular Smart Array 1500 Controller Shelf<br>NOTE: Please see the StorageWorks Modular SAN Array 1500 cs QuickSpecs for additional options and configuration information at: http://www.hp.com/go/MSA1500cs. | AA986A |
| **Uninterruptible Power Systems - Rack** | HP R1.5 VA 1U UPS INTL | AF418A |
| | HP R1.5 VA 1U UPS JPN | AF421A |
| | HP R1.5 VA 1U UPS NA | AF419A |
| | HP R/T2200 2-U ERM | AF412A |
| **HP Monitored Power Distribution Unit** (PDU) | **HP Monitored Power Distribution Unit: Full Rack Version** | |
| | 17.3 kVA Monitored PDU Model S2324 | AF503A |
| | 8.6 kVA Monitored PDU Model S1324 | AF504A |
| | 16.6 kVA Monitored PDU Model S2140 | AF505A |
| | 8.3 kVA Monitored PDU Model S1140 | AF506A |
| | 22 kVA Monitored PDU Model S2316 | AF507A |
| | 11 kVA Monitored PDU Model S1316 | AF508A |
| | 14.7 kVA Monitored PDU Model S2132 | AF509A |
| | 7.3 kVA Monitored PDU Model S1132 | AF510A |
| | 4.9kVA Monitored PDU model S124 | AF514A |
| | 7.3kVA Monitored PDU model S132 | AF515A |
| **USB Options** | HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver) | DC172B |
| | 1.44MB External USB Floppy Drive | DC141B |
| | HP USB 04 Standard Keyboard | DT528A#ABA |
| | HP 1GB USB 2.0 Floppy Drive Key | 442085-B21 |
| | HP 256MB USB 2.0 Floppy Drive Key | 442084-B21 |
| **HP Rack 5000 Series** (Graphite Metallic) | HP 5642 Rack-Unassembled<br>NOTE: Please see the HP Rack 5642 QuickSpecs for additional part numbers and Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12074_div/12074_div.html (Worldwide)<br>NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower. | 358254-B21 |

*Options*

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|---|---|---|
| HP Rack 10000 G2 Series (Carbon/Graphite Metallic) | 10642 G2 (42U) Rack Cabinet - Pallet | AF001A |
| | 10642 G2 (42U) Rack Cabinet - Shock Pallet | AF002A |
| | 10642 G2 (42U) Rack Cabinet - Crated | AF003A |
| | 10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet | AF004A |
| | 10636 G2 (36U) Rack Cabinet - Pallet | AF011A |
| | 10636 G2 (36U) Rack Cabinet - Shock Pallet | AF012A |
| | 10636 G2 (36U) Rack Cabinet - Crated | AF013A |
| | 10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet | AF014A |
| | 10622 G2 (22U) Rack Cabinet - Pallet | AF021A |
| | 10622 G2 (22U) Rack Cabinet - Shock Pallet | AF022A |
| | 10842 G2 (42U) 800mm Wide Rack Cabinet - Pallet | AF041A |
| | 10842 G2 (42U) 800mm Wide Rack Cabinet - Shock Pallet | AF042A |
| | 10647 G2 (47U) Rack Cabinet - Pallet | AF031A |
| | NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed. | |
| | NOTE: Please see the Rack 10000 G2 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html (Worldwide) | |
| | NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower. | |
| HP Rack 10000 Series (Graphite Metallic) | HP S10614 (14U) Rack Cabinet - Shock Pallet | 292302-B22 |
| | NOTE: xxxxxx-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels). | |
| | NOTE: It is mandatory to use a shock pallet in order to ship racks with equipment installed. Not all Compaq equipment is qualified to be shipped in the Rack 10000 series. | |
| | NOTE: Please see the Rack 10000 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.html (Worldwide) | |
| | NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower. | |

*Options*

| | | |
|---|---|---|
| Keyboards and Monitors | TFT7210R Rack Mounted 17" Monitor | 348373-B21 |
| | TFT7600 Rackmount Keyboard Monitor US | AG052A |
| | TFT7600 Rackmount Keyboard Monitor UK | AG053A |
| | TFT7600 Rackmount Keyboard Monitor GR | AG054A |
| | TFT7600 Rackmount Keyboard Monitor FR | AG055A |
| | TFT7600 Rackmount Keyboard Monitor IT | AG056A |
| | TFT7600 Rackmount Keyboard Monitor SP | AG057A |
| | TFT7600 Rackmount Keyboard Monitor DEN | AG058A |
| | TFT7600 Rackmount Keyboard Monitor NOR | AG059A |
| | TFT7600 Rackmount Keyboard Monitor SE/FI | AG060A |
| | TFT7600 Rackmount Keyboard Monitor SWI | AG061A |
| | TFT7600 Rackmount Keyboard Monitor PORT | AG062A |
| | TFT7600 Rackmount Keyboard Monitor BEL | AG063A |
| | TFT7600 Rackmount Keyboard Monitor JPN2 | AG064A |
| | TFT7600 Rackmount Keyboard Monitor RUS | AG065A |
| | TFT7600 Rackmount Keyboard Monitor INTL | AG066A |
| | 1U Rackmount Keyboard with USB, US | AG072A |
| | 1U Rackmount Keyboard with USB, UK | AG073A |
| | 1U Rackmount Keyboard with USB, GR | AG074A |
| | 1U Rackmount Keyboard with USB, FR | AG075A |
| | 1U Rackmount Keyboard with USB, ITL | AG076A |
| | 1U Rackmount Keyboard with USB, SP | AG077A |
| | 1U Rackmount Keyboard with USB, DEN | AG078A |
| | 1U Rackmount Keyboard with USB, NOR | AG079A |
| | 1U Rackmount Keyboard with USB, SE/FI | AG080A |
| | 1U Rackmount Keyboard with USB, SWI | AG081A |
| | 1U Rackmount Keyboard with USB, PORT | AG082A |
| | 1U Rackmount Keyboard with USB, BEL | AG083A |
| | 1U Rackmount Keyboard with USB, JPN2 | AG084A |
| | 1U Rackmount Keyboard with USB, RUS | AG085A |
| | 1U Rackmount Keyboard with USB, INTL | AG086A |

NOTE: For additional information regarding Rack Options, please see the following URL: http://www.hp.com/go/rackandpower.

*Options*

| | | |
|---|---|---|
| **HP KVM Switch Options** | 2x1x16 IP Console Switch with Virtual Media | AF601A |
| | 4x1x16 IP Console Switch with Virtual Media | AF602A |
| | 2x16 Server Console Switch with Virtual Media | AF600A |
| | PS/2 Virtual Media Interface Adapter, 1 pack<br>NOTE: Requires PS/2 and one USB port on server. | AF604A |
| | Server Console Switch (KVM), 0 x 1 x 8 port | 336044-B21 |
| | Server Console Switch (KVM), 0 x 2 x 16 port | 336045-B21 |
| | PS/2 Interface Adapter, 1 pack | 262588-B21 |
| | PS/2 Interface Adapter, 8 pack | 262587-B21 |
| | USB Interface Adapter, 1 pack | 336047-B21 |
| | Serial Interface adapter - 1 Pack with power supply | 373035-B21 |
| | NOTE: Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm. | |
| | HP 1x4 Console Switch | AF611A |
| | HP PS2 Server Console Cable, 6 foot, 2-Pack | AF612A |
| | HP USB Server Console Cable, 6 foot, 2-Pack<br>NOTE: Required for supporting USB peripherals. | AF613A |
| | NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm. | |

| | | |
|---|---|---|
| **HP Serial Console Server Options** | HP 16 Port Serial Console Server (worldwide) | AF101A |
| | HP 48 Port Serial Console Server (worldwide) | AF102A |
| | Serial Adapter, RJ45-DB9 DCE Female, 1 Pack | AF103A |
| | Serial Adapter, RJ45-DB9 DCE Female, 8 Pack | AF110A |
| | NOTE: Cat5e cables are required to connect Serial Adapters to Serial Console Servers. Additional Serial Adapters and Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm. | |
| | NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm. | |

*Options*

| | | |
|---|---|---|
| **Service and Support Offerings** (HP Care Pack Services) | **Hardware Services On-site Service** | |
| | 4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic | U4544E |
| | 4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic | U4545E |
| | **Hardware Services 6-Hour Call to Repair On-site Service** | |
| | 6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic | U4546E |
| | **Installation & Start-up Services** | |
| | Hardware Installation, Electronic | U4554E |
| | Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays, Electronic | U4555E |
| | Installation and Startup for Essentials Rapid Deployment Pack, Electronic | U5683E |
| | **Support Plus** | |
| | Onsite HW support, 8am-9pm, M-F, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, Electronic | U4556E |
| | **Support Plus 24** | |
| | Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic | U4557E |
| | Onsite HW support 24x7, 4hr response and SuSE Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic | U6312E |
| | Onsite HW support 24x7, 4hr response and Red Hat ES Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic | U8334E |
| | **NOTE:** For more information, customer/resellers can contact: http://www.hp.com/services/carepack | |

*Memory*

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

Standard Memory
2 GB PC2-5300 Fully Buffered DIMMs (DDR2-667) (2 x 1 GB)

Upgrading Memory and Memory Interleaving
When upgrading memory, DIMMs 1A and 2A must match. DIMMs 3B and 4B, DIMMs 5C and 6C, and DIMMs 7D and 8D must match and must be installed as a pair. When DIMMs 1A and 2A are populated the system is automatically configured for 2:1 interleaving. When all 4 banks are populated the system is automatically configured for 4:1 interleaving. When four, six, or eight DIMMs are populated with identical DIMMs the system is automatically configured for bank interleaving.

Standard Memory Plus Optional Memory
Up to 26 GB memory is available with the standard memory and the optional installation of PC2-5300 Fully Buffered DIMMs (DDR2-667) memory kits.

Standard Memory Replaced with Optional Memory
Up to 32 GB of memory is available with the removal of the standard memory and the optional installation of PC2-5300 Fully Buffered DIMMs (DDR2-667) memory kits.

NOTE: Chart does not represent all possible configurations.

| Memory | | Slot | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Standard | 2 GB | 1 GB | 1 GB | Empty | Empty | Empty | Empty | Empty | Empty |
| Optional | 26 GB | 1 GB | 1 GB | 4 GB | 4 GB | 4 GB | 4 GB | 4 GB | 4 GB |
| Maximum | 32 GB | 4 GB | 4 GB | 4 GB | 4 GB | 4 GB | 4 GB | 4 GB | 4 GB |

NOTE: In the online spare configuration, the ROM automatically configures the last populated bank as the spare memory. If only banks A and B are populated, bank B is the spare bank. If banks A, B, and C are populated, bank C is the spare bank, Online spare memory is configured through RBSU.
NOTE: Mirrored Memory uses mirrored banks to provide a high level of memory redundancy. Customer chooses to implement or not: User selectable via BIOS and default is off.

Following are memory options available from HP:

| | |
|---|---|
| 1 GB FBD PC2-5300 2 x 512 MB Kit | 397409-B21 |
| 2 GB FBD PC2-5300 2 x 1 GB Kit | 397411-B21 |
| 2 GB FBD PC2-5300 2 x 1 GB LP Kit | 461826-B21 |
| 4 GB FBD PC2-5300 2 x 2 GB Kit | 397413-B21 |
| 4 GB FBD PC2-5300 2 x 2 GB LP Kit | 461828-B21 |
| 8 GB FBD PC2-5300 2 x 4 GB Kit | 397415-B21 |
| 8 GB FBD PC2-5300 2 x 4 GB LP Kit | 466440-B21 |

NOTE: Memory Option Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, please visit: http://h18004.www1.hp.com/products/servers/platforms/energyefficient/

In Advanced ECC mode, FBDIMMs must be populated as specified in the following table:

| Configuration | Bank A<br>1A and 3A | Bank B<br>5B and 7B | Bank C<br>2C and 4C | Bank D<br>6D and 8D |
|---|---|---|---|---|
| 1 | X | - | - | - |
| 2 | X | X | - | - |
| 3 | X | X | X | - |
| 4 | X | X | X | X |

Online spare memory configuration

Online spare FBDIMM configuration requirements (in addition to general configuration requirements):

- When only bank A is being used, it must be fully populated with dual-rank FBDIMMs.
- If banks A and C are being used, they must be fully populated.
- If installed, bank A and bank C must contain FBDIMMs with identical part numbers.
- If installed, bank B and bank D must also contain FBDIMMs with identical part numbers.

In online spare mode, FBDIMMs must be populated as specified in the following table:

| Configuration | Branch 0 Bank A 1A and 3A | Branch 0 Bank C 2C and 4C | Branch 1 Bank B 5B and 7B | Branch 1 Bank D 6D and 8D |
|---|---|---|---|---|
| 1* | X | - | - | - |
| 2 | X | X | - | - |
| 3 | X | X | X | X |

* Configuration 1 is only supported if using bank A, populated with dual-rank FBDIMMs. All FBDIMMs 1GB and above are dual-rank.
After installing FBDIMMs, use RBSU to configure the system for online spare memory support ("Configuring online spare memory" on page 57).

Mirrored memory configuration

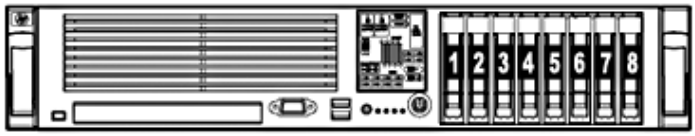
Mirrored memory FBDIMM configuration requirements (in addition to general configuration requirements):

- Banks A and B must be fully populated.
- Bank A and bank B must contain FBDIMMs with identical part numbers. If installed, bank C and bank D must also contain FBDIMMs with identical part numbers.

When using mirrored memory mode, FBDIMMs must be populated as specified in the following table:

| Configuration | Bank A 1A and 3A | Bank B 5B and 7B | Bank C 2C and 4C | Bank D 6D and 8D |
|---|---|---|---|---|
| 1 | X | X | - | - |
| 2 | X | X | X | X |

NOTE: After installing FBDIMMs, use RBSU to configure the system for mirrored memory support ("Configuring mirrored memory" on page 57).




1-8 Eight SFF SAS hot plug hard drive bays

## Drive Support

| | Quantity Supported | Position Supported | Controller |
|---|---|---|---|
| **Removable Media** | | | |
| 1.44-MB Diskette Drive | Only 1 available removable media bay | Slimline bay | Integrated diskette<br>NOTE: Optional |
| Slimline CD-RW/DVD-ROM Combo Option Kit<br>NOTE: Included in performance models. | Only 1 available removable media bay | Slimline bay | Integrated IDE<br>NOTE: Optional |
| Slimline DVD-ROM Drive (8x/24x) Option Kit | Only 1 available removable media bay | Slimline bay | Integrated IDE<br>NOTE: Optional |
| HP ProLiant Slim CD-ROM x24 | Only 1 available removable media bay | Slimline bay | Integrated IDE<br>NOTE: Optional |
| HP DVD±R/RW 8X Slim | Only 1 available removable media bay | Slimline bay | Integrated IDE<br>NOTE: Optional |

**Hard Drives**

**SFF SAS - Hot Plug Drives**

| | Quantity Supported | Position Supported | Controller |
|---|---|---|---|
| 146GB 3G SAS 10K SP<br>146GB 3G SAS 10K DP<br>72GB 3G SAS 10K SP<br>72GB 3G SAS 10K DP<br>72GB 3G SAS 15K SP<br>72GB 3G SAS 15K DP<br>36GB 3G SAS 15K SP<br>36GB 3G SAS 15K DP | Up to 8 | 1-8 | HP Smart Array E200/64MB Controller<br>HP Smart Array E200/128 BBWC Controller<br>HP Smart Array E500 Controller<br>HP Smart Array P400/256MB Controller<br>HP Smart Array P400/512MB BBWC Controller<br>HP Smart Array P600/256 BBWC Controller<br>NOTE: Optional mixed PCI-X/E required for SA-P600.<br>HP Smart Array P800/512 BBWC Controller |

**SATA - Hot Plug Drives**

| | Quantity Supported | Position Supported | Controller |
|---|---|---|---|
| 120GB 1.5G SATA 5.4K<br>60GB 1.5G SATA 5.4K | Up to 8 | 1-8 | HP Smart Array E200/64MB Controller<br>HP Smart Array E200/128 BBWC Controller |

HP Smart Array E500 Controller
HP Smart Array P400/256MB Controller
HP Smart Array P400/512MB BBWC Controller
HP Smart Array P600/256 BBWC Controller
NOTE: Optional mixed PCI-X/E required for SA-P600.
HP Smart Array P800/512 BBWC Controller

**External Storage**

| | Quantity Supported | Position Supported | Host Controller or Adapter |
|---|---|---|---|
| Modular Smart Array 20 Family | 1 per SCSI VHDCI connector | External | Smart Array 6402/128 Controller<br>Smart Array 6404/256 Controller<br>NOTE: Optional mixed PCI-X/E cage required. |
| Modular Smart Array 30 Family | Up to 4 | External | Smart Array E500/256MB Controller |
| | Up to 2 | | HP Smart Array P600/256 BBWC Controller |
| | Up to 4 | | HP Smart Array P800/512 BBWC Controller |
| Modular Smart Array 50 Enclosure | 2 per connector (supports 1+1 cascading) | External | HP Smart Array P600/256 BBWC Controller<br>NOTE: Optional mixed PCI-X/E cage required. |
| Modular Smart Array 60 Enclosure | Up to 8 | External | Smart Array E500/256MB Controller |
| | Up to 4 | | HP Smart Array P600/256 BBWC Controller |
| | Up to 8 | | HP Smart Array P800/512 BBWC Controller |
| Modular Smart Array 70 Enclosure | Up to 4 | External | Smart Array E500/256MB Controller |
| | Up to 2 | | HP Smart Array P600/256 BBWC Controller |
| | Up to 4 | | HP Smart Array P800/512 BBWC Controller |
| Modular Smart Array 500 G2 | 1 per SCSI | External | Please see the Modular Smart Array 500 G2 QuickSpecs for the latest list of supported HBAs: http://h18000.www1.hp.com/products/quickspecs/12245_div/12245_div.html |
| Modular Smart Array 1000 | Please see the QuickSpecs to determine configuration requirements | External | Please see the Modular Smart Array 1000 QuickSpecs for the latest list of supported HBAs: http://hp.com/go/msa1000 |
| Modular Smart Array 1500 cs | Please see the QuickSpecs to determine configuration requirements | External | Please see the Modular Smart Array 1500 cs QuickSpecs for the latest list of supported HBAs: http://www.hp.com/go/MSA1500cs |

**Maximum Storage Capacity** - (with MSA50)

| | |
|---|---|
| Internal | 1.168TB (8 x 146GB SAS SFF) |
| External | 2.920TB (20 x 146GB SAS SFF) |
| Total | 4.088TB |

Tape Drives, Tape Autoloaders, Tape Libraries & D2D Backup

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Drives listed below, please see the following: http://h18000.www1.hp.com/products/quickspecs/division/10233.html (Worldwide)

NOTE: For an up-to-date listing of the latest O/S Support details for each of the Tape Autoloaders and Tape Libraries listed below, please see the following: http://h18000.www1.hp.com/products/quickspecs/division/10809.html (Worldwide)

NOTE: For complete listing of tape drive offerings see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html

NOTE: SAS Tape Drives: Connecting hard drive cage and SAS tape to the same SAS Controller using split cable (supplied with tape drive) deactivates 1 of the hard drive bays. Actual hard drive bay deactivated depends on where split cable plugs into SAS drive connector. Example: 3x SAS cable connector plugged into SAS drive connector (5-8) on the back of the hard drive cage would mean drive bay 8 is deactivated.

| | Position Supported | Controller | Part Number |
|---|---|---|---|
| **HP StorageWorks SCSI Tape Drives, External**<br>LTO-1 Ultrium 232<br>LTO-2 Ultrium 448<br>LTO-2 Ultrium 460<br>LTO-3 Ultrium 960<br>LTO-3 Ultrium 920<br>LTO-4 Ultrium 1840<br>DAT 40<br>DAT 72<br>DAT 160<br>DLT VS160<br>SDLT 600<br>1U Rack-Mount Kit<br>3U Rack-Mount Kit | External | HP SC11Xe Host Bus Adapter | 412911-B21 |
| **HP StorageWorks USB Tape Drives, External**<br>DAT 40 USB<br>DAT 72 USB<br>DAT 160 USB<br>1U Rack-Mount Kit | External | USB 2.0 Port | N/A |
| **HP StorageWorks SAS Tape Drives, External**<br>DAT 160 SAS<br>LTO-2 Ultrium 448 SAS<br>LTO-3 Ultrium 920 SAS<br>LTO-4 Ultrium 1760 SAS | External | HP SC44Ge Host Bus Adapter<br>NOTE: Recommended. | 416096-B21 |
| | | HP Smart Array P400/256MB Controller | 405132-B21 |
| | | HP Smart Array P400/512MB Controller | 411064-B21 |

*Storage*

| | | | |
|---|---|---|---|
| SAS<br>LTO-4 Ultrium 1840<br>SAS<br>1U Rack-Mount Kit | | NOTE: Please visit: http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements. | |
| **HP StorageWorks SCSI Tape Automation, External**<br>DAT 72x10 Autoloader<br>1/8 G2 Autoloader<br>MSL2024<br>MSL4048<br>MSL8096<br>MSL6000 | External | HP SC11Xe Host Bus Adapter | 412911-B21 |
| | | HP U320e SCSI Host Bus Adapter<br>NOTE: Only valid for MSL tape libraries. | AH627A |
| **HP StorageWorks SAS Tape Automation, External**<br>1/8 G2 Autoloader<br>MSL2024<br>MSL4048<br>MSL8096 | External | HP SC44Ge Host Bus Adapter<br>NOTE: Please visit http://www.hp.com/go/connect for details about minimum SAS controller firmware version and SAS cabling requirements. | 416096-B21 |
| **HP StorageWorks Fibre Tape Automation, External**<br>MSL2024<br>MSL4048<br>MSL8096<br>MSL6000 | External | Please consult the EBS connectivity matrix at http://www.hp.com/go/ebs for detailed connectivity information. | N/A |
| **HP StorageWorks D2D Backup Systems**<br>D2D110<br>D2D120<br>D2D130 | External | Embedded Network Controller | N/A |

*Power Specifications*

| Power Supply Specification - AC | Part number | | 380622-001 | | | |
|---|---|---|---|---|---|---|
| | Spare Kit | | 403781-001 | | | |
| Operational Input Voltage Range (Vrms) | 90 to 264 | | | | | |
| Frequency Range (Nominal) (Hz) | 47 to 63 (50/60) | | | | | |
| Nominal Input Voltage (Vrms) | 100 | 120 | 208 | 220 | 230 | 240 |
| Max Rated Output Wattage Rating | 800 | 850 | 1000 | 1000 | 1000 | 1000 |
| Nominal Input Current (A rms) | 10.0 | 8.8 | 5.85 | 5.5 | 5.2 | 4.97 |
| Max Rated Input Wattage Rating (Watts) | 980 | 1035 | 1193 | 1186 | 1172 | 1169 |
| Max. Rated VA (Volt-Amp) | 1000 | 1056 | 1217 | 1210 | 1196 | 1193 |
| Efficiency (%) | 81.5 | 82 | 84 | 84 | 85 | 85.5 |
| Power Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Leakage Current (mA) | 0.44 | 0.52 | 0.91 | 0.96 | 1.00 | 1.04 |
| Max. Inrush Current (A peak) | 30 | 30 | 30 | 30 | 30 | 30 |
| Max. Inrush Current duration (mS) | 3 | 3 | 3 | 3 | 3 | 3 |

| Power Supply Specification - DC | Part number | | 433634-B21 |
|---|---|---|---|
| | Spare Kit | | 419613-001 |
| Operational Input Voltage Range (Vrms) | -36.0 to -72.0V DC | | |
| Frequency Range (Nominal) (Hz) | DC | | |
| Nominal Input Voltage (Vrms) | 36 | 48 | 72 |
| Max Rated Output Wattage Rating | 1210 | 1210 | 1210 |
| Nominal Input Current (A rms) | 38 | 29 | 20 |
| Max Rated Input Wattage Rating (Watts) | 1368 | 1392 | 1440 |
| Efficiency (%) | 87.6 | 87.6 | 86 |
| Max. Inrush Current (A peak) | 60 | 60 | 60 |
| Max. Inrush Current duration (mS) | 100 | 100 | 100 |

NOTES:

- To review typical system power ratings use the Active Answers Power Calculator which is available via the online tool located at url: http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls

To drill down to calculators:

- Click on: "ProLiant Servers"
- Click on the Server of interest. Example: DL380 G5
- Click on: "Power Calculator" link. (You may need to scroll down to see it)

| | | | |
|---|---|---|---|
| System Unit | **Dimensions** (H x W x D) (with bezel) | 3.38 x 17.54 x 26.01 in (8.59 x 44.54 x 66.07 cm) | |
| | **Weight** (approximate) | Maximum (all hard drives, power supply, and processor installed) | 60 lb (27.22 kg) |
| | | Minimum (one hard drive, power supply, and processor installed) | 47.18 lb (20.41 kg) |
| | **Input Requirements** (per power supply) | Rated Line Voltage | 100 - 132 VAC,<br>200 - 240 VAC |
| | | Rated Input Current | 10A (at 100 VAC)<br>9A (at 120 VAC)<br>6.1A (at 200 VAC) |
| | | Rated Input Frequency | 50 to 60 Hz |
| | | Rated Input Power | 980W (at 100 VAC)<br>1035W (at 120 VAC)<br>1170W (at 240 VAC) |
| | **BTU Rating** | Maximum | 3350 BTU/hr (at 100 VAC)<br>3530 BTU/hr (at 120 VAC)<br>3990 BTU/hr (at 240 VAC) |
| | **Power Specifications** | To review typical system power ratings use the Power Calculator which is available via the online tool located at URL: http://h30099.www3.hp.com/configurator/calc/Power%20Calculator%20Catalog.xls<br><br>- Click on the system of interest. Example: DL380 G5<br>- Follow the instructions of the next screens. | |
| | **Power Supply Output Power** (per power supply) | Rated Steady-State Power | 800 W (at 100 VAC)<br>850 W (at 120 VAC)<br>1000W (at 200-240 VAC) |
| | | Maximum Peak Power | 800 W (at 100 VAC)<br>850 W (at 120 VAC)<br>1000W (at 200-240 VAC) |
| | **System Inlet Temperature** | Operating | 10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed.<br>System performance may be reduced if operating with a fan fault or above 30°C (86°F). |
| | | Non-operating | -30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr). |
| | **Relative Humidity** | Operating | 10 to 90% relative humidity (Rh), 28°C (82.4°F) |

| | | | |
|---|---|---|---|
| | (non-condensing) | | maximum wet bulb temperature, non-condensing. |
| | | Non-operating | 5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing. |
| | Altitude | Operating | 3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min). |
| | | Non-operating | 9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min). |
| | Acoustic Noise | Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109). | |
| | | Idle | |
| | | LWAd | 6.1 B |
| | | LpAm | 44 dBA |
| | | Operating | |
| | | LWAd | 6.1 B |
| | | LpAm | 44 dBA |
| Smart Array P400 Controller | Disk Drive and Enclosure Interface | 3G SAS (Serial Attached SCSI)<br>1.5G SATA (Serial Advanced Technology Attachment) | |
| | SAS Connectors | 2 internal (SFF8484) x4 wide port connectors | |
| | Cache Memory Speed | DDR2-533MHz with 40 or 72-bit wide bus provides up to 4.2 GB/s maximum bandwidth. | |
| | Server Interface | x8 2.5G PCIe provides 2GB/s maximum bandwidth. | |
| | SAS Speed | x8 3G SAS provides 2.4GB/s maximum bandwidth. | |
| | Cache Memory | 40-bit 256MB cache (72-bit 512MB module upgrades available); ECC protection, battery-backed, and transportable | |
| | Logical Drives Supported | Up to 32 logical drives | |
| | Host Memory Addressing | 64-bit, supporting greater than 4GB server memory space | |
| | RAID Support | RAID 6 with ADG (Advanced Data Guarding) requires Battery Backed Write Cache Upgrade<br>RAID 5 (Distributed Data Guarding)<br>RAID 1+0 (Striping & Mirroring)<br>RAID 0 (Striping) | |

*Technical Specifications*

| | | |
|---|---|---|
| Smart Array E200 Controller | Disk Drive and Enclosure Interface | 3G SAS (Serial Attached SCSI)<br>1.5G SATA (Serial Advanced Technology Attachment) |
| | SAS Connectors | 2 internal (SFF8484) x4 wide port connectors |
| | Cache Memory Speed | DDR1-266 MHz provides up to 4.2 GB/s maximum bandwidth. |
| | Server Interface | x8 2.5G PCIe provides 2GB/s maximum bandwidth. |
| | SAS Speed | x8 3G SAS provides 2.4GB/s maximum bandwidth. |
| | Cache Memory | 40-bit 64MB cache or a 128MB battery backed cache: ECC protection, battery-backed, and transportable |
| | Logical Volumes Supported | Up to 32 logical volumes |
| | Maximum Volume Capacity | 3TB (6 x 500 GB) |
| | Host Memory Addressing | 64-bit, supporting greater than 4GB server memory space |
| | RAID Support | RAID 5 (Distributed Data Guarding)<br>RAID 1, 1+0 (Striping & Mirroring)<br>RAID 0 (Striping) |

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|---|---|---|---|
| Two Embedded NC373i Multifunction Server Adapters | Network Interface | 10Base-T/100Base-TX/1000Base-TX | |
| | Compatibility | IEEE 802.3 10Base-T | |
| | | IEEE 802.3ab 1000Base-T | |
| | | IEEE 802.3u 100Base-TX | |
| | Data Transfer Method | PCI Express, four lanes (x4) | |
| | Network Transfer Rate | 10Base-T (Half-Duplex) | 10 Mb/s |
| | | 10Base-T (Full-Duplex) | 20 Mb/s |
| | | 100Base-TX (Half-Duplex) | 100 Mb/s |
| | | 100Base-TX (Full-Duplex) | 200 Mb/s |
| | | 1000Base-TX (Half and Full-Duplex) | 2000Mb/s |
| | Connector | Two RJ-45 | |
| | Cable Support | 10Base-T | Categories 3, 4 or 5 UTP; up to 328 ft (100 m) |
| | | 100Base-TX | Category 5 or higher UTP; up to 328 ft (100 m) |
| | | 1000BaseTX | Category 5 or higher UTP; up to 328 ft (100 m) |

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| Environment-friendly Products and Approach | End-of-life Management and Recycling | Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner.<br><br>The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment. |

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For hard drives, 1 GB = 1 billion bytes. Actual formatted capacity is less.